



DRAFT
THREE CORNERS
GRAZING MANAGEMENT
ENVIRONMENTAL STATEMENT

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ERRATA SHEET:
BELOW IS A CORRECTED SUMMARY

SUMMARY

(X) Draft

() Final Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of Action (X) Administrative () Legislative

2. Brief Description of Action: The Three Corners Planning Unit is in the northeast corner of Utah, approximately 20 miles north of Vernal, Utah and approximately 45 miles south of Rock Springs, Wyoming. It encompasses 190,536 acres of public land, 85 percent of which is in Utah and 15 percent in Colorado.

The proposed action is to initially allocate the following animal unit months (AUMs) of forage: 15,788 for cattle; 3,655 for sheep; 9,684 for deer; 4,838 for elk; and 378 for antelope. In 15 to 20 years the proposed allocation of AUMs would be: 16,174 for cattle; 3,259 for sheep; 10,299 for deer; 6,091 for elk; and 380 for antelope. The proposed action includes: 1) reserve one allotment for big game use; 2) continue present allotment-wide grazing on 17 allotments; 3) continue present improved management on four allotments with existing AMPs; and 4) implement improved management on 17 allotments. (These actions would involve combining 50 existing allotments into 39 allotments).

Developments proposed include: fencing 3.5 miles of stream banks, 26.5 miles of division and allotment boundary fences, 52 water developments, and 1,620 acres of sage brush control.

3. Summary of Environmental Impacts: In general, existing fair and good forage condition for livestock on 182,121 acres would be maintained or improved. Poor forage condition for livestock would remain on 8,145 acres. Vegetation composition changes would occur, with increases in desirable plants on 22 allotments. Existing forage (AUMs) for livestock and big game would be used and future increases in forage production and use (by 7,572 AUMs) would occur along with related economic gain. Minor impacts would occur to these resources: soils, water, threatened and endangered plants (inadvertant loss), cultural and paleontological features (inadvertant damage), and recreation values.

4. Alternatives Considered Are: 1) Livestock grazing at full forage production; 2) continuation of present range management and level of allocation (no action); 3) livestock grazing at 50% of the initial proposed stocking level; and 4) elimination of all livestock grazing.

5. Comments Have Been Requested From the Following: (See Attachment).

6. Date Draft Statement Made Available to EPA and the Public:

— — — — —
Please note also, on Page 2 of the Attachment, that "National Resources Defense Council," should read "Natural Resources Defense Council;" and that the photographs on pages 2-19 and 2-20 are reversed.

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ENVIRONMENTAL STATEMENT

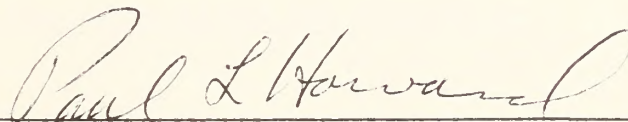
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6. Date Draft Statement Made Available to EPA and the Public:

ATTACHMENT

Comments on the Draft Environmental Statement have been requested from the following agencies, interest groups, and individuals. A Public Hearing will be held.

1. Federal Agencies

- Department of Agriculture
 - Agricultural Stabilization and Conservation Service
 - Forest Service
 - Soil Conservation Service
- Department of the Interior
 - Geological Survey
 - Fish and Wildlife Service
 - Bureau of Indian Affairs
 - Bureau of Mines
 - Bureau of Reclamation
 - Heritage Conservation and Recreation Service
 - National Park Service
 - Dinosaur National Monument
 - Office of the Solicitor
- Department of Commerce
 - Advisory Council on Historic Preservation
 - Environmental Protection Agency

2. State Agencies and Entities

- State of Utah
 - Clearing House (A-95)
 - Department of Agriculture
 - Department of Natural Resources
 - Division of Lands
 - Division of Wildlife Resources
- University of Utah
- Utah State University
- State of Colorado
 - Governor's Clearing House
 - Division of Wildlife
 - State Historical Society
- State of Wyoming
 - Fish and Game

3. Local Agencies

- Uintah County Commissioners (Utah)
- Daggett County Commissioners (Utah)
- Moffat County Commissioners (Colorado)
- Sweetwater County Commissioners (Wyoming)

4. Non-government Organizations

- Ada County Fish and Game League
- Ashley Valley Woolgrowers

Audubon Society
Brigham Young University
Colorado Cattlemen's Association
Colorado Open Space Council
Colorado Plateau Environment Advisory Council
Colorado Wool Grower's Association
Common Cause
Council on Utah Resources
Defenders of the Outdoor Heritage
Defenders of Wildlife
Enchanted Wilderness Association
Environmental Action
Environmental Awareness
Environmental Defense Fund
Friends of the Earth
Good Earth
Izaak Walton League
League of Women Voters
National Council of Public Land Users
National Parks and Recreation Association
National Resources Defense Council
National Stock Grower's Association
National Wildlife Federation
Nature Conservancy
Nevada Outdoor Recreation Association
Oregon Environmental Council
Pacific Legal Foundation
Pro-Utah, Inc.
Public Lands Council
Rocky Mountain Center on Environment
Rocky Mountain Sportsmen Association
Save Our Canyons Committee
Sierra Club
Society of Range Management
The Wilderness Society
The Wildlife Society
Utah Cattlemen's Association
Utah Chapter, Trout Unlimited
Utah Environment Center
Utah Farm Bureau
Utah Nature Study Society
Utah Sportsmen Association
Utah Archaeological Society
Utah Wildlife and Outdoor Recreation Federation
Utah Wool Grower's Association
Vernal Chamber of Commerce
Vernal Rod and Gun Club
Women's Conservation Council of Utah

5. Congressional

Colorado Delegation
Utah Delegation

6. Interested Individuals

Copies of this draft environmental statement will be available for public inspection at the Bureau of Land Management Offices listed below:

Washington Office of Public Affairs
18th and C Street, N.W.
Washington, D.C. 20240
Phone: (202) 343-4151

Utah State Office
University Club Building
135 East South Temple
Salt Lake City, Utah 84111
Phone: (801) 524-4257

Vernal District Office
170 South 500 East
Vernal, Utah 84078
Phone: (801) 789-1362

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CHAPTER 1
DESCRIPTION OF THE PROPOSAL

CHAPTER 1 DESCRIPTION OF THE PROPOSAL

INTRODUCTION

This proposal is based upon planning done by the Bureau of Land Management (BLM) District Office at Vernal, Utah. The boundary of the area analyzed generally coincides with the boundary of the Three Corners Planning Unit (exceptions are described in Appendix I-1) of the Vernal District's Diamond Mountain Resource Area. The planning unit, shown on Figure 1-1, is bounded on the northwest by Flaming Gorge National Recreation Area and on the southeast by Dinosaur National Monument. About 85 percent of the planning unit is within the State of Utah and the remainder is within Colorado.

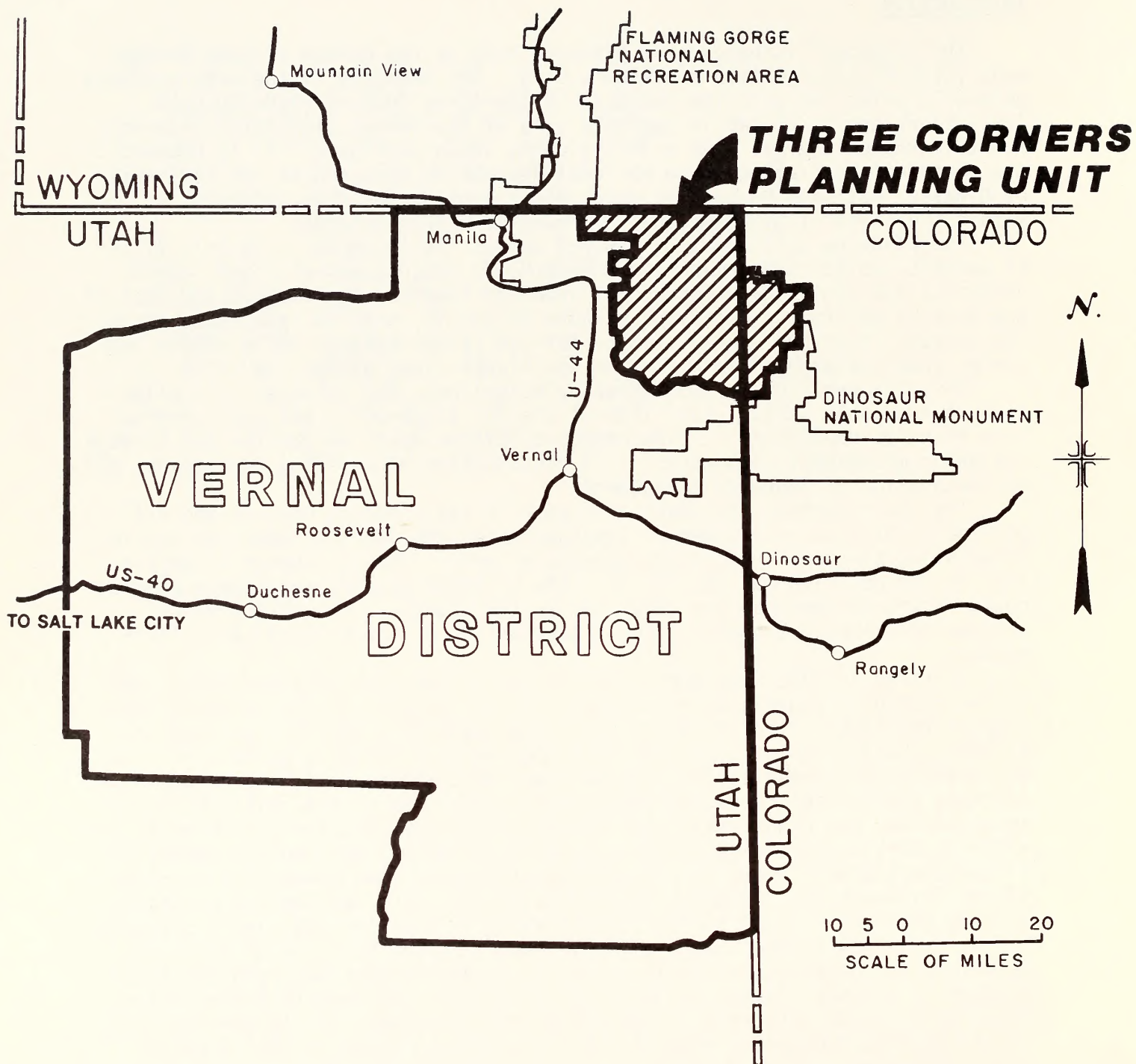
The planning unit contains 326,083 acres. As shown on Table 1-1, it is 61 percent public land administered by BLM, 33 percent private land, and 6 percent state land. Land ownership, shown on Figure 1-2, is mixed and most of the grazing allotments contain a mixture of public, private, and state lands. The private lands are usually in the fertile valley bottoms while public and state lands are generally located on the higher, less productive sites.

This chapter focuses upon three principal proposed actions: (1) allocation of available forage, (2) kinds of grazing treatments, and (3) construction of range developments. The proposed actions would be carried out through two major management components: (1) continuation of existing management, (2) implementation of improved management.

The environmental statement is a part of the planning process and will provide a detailed environmental assessment for the decision maker to use in formulating the final grazing management program. This statement is only a tool in the decision-making process. The selected grazing management program could be the recommendations described as the proposal, one of the alternatives described in Chapter 8, or a combination of the proposal and alternatives.

Starting in 1958, the BLM Vernal District undertook an extensive adjudication of public rangelands to reduce livestock grazing to the carrying capacity of the range. The adjudication lasted about 10 years and was completed in 1967. During the same period, construction of Flaming Gorge Reservoir on the Green River, immediately upstream from the planning unit, inundated important big game winter ranges and migration routes. As partial mitigation for these losses, the Utah Division of Wildlife Resources and the U.S. Fish & Wildlife Service purchased properties and 2,361 animal unit months (AUMs) of cattle grazing privileges in six grazing allotments (Red Creek, Taylor Flat, Watson, Willow Creek, Bridgeport, and Rye Grass). BLM retired the purchased grazing privileges to partially replace winter forage for big game. Big game winter range was further improved by BLM and the Utah Division of Wildlife Resources by chaining about 4,000 acres of pinyon-juniper and seeding with a mixture of grasses, forbs, and browse. Interagency agreements further mandated BLM's Vernal District to emphasize the enhancement of big game habitat in its grazing management program. This has been a Vernal District policy since that time.

The cumulative effect of adjudication and mitigation for Flaming Gorge Reservoir was a reduction of livestock grazing from 26,683 AUMs in 1958 to 20,150 AUMs in 1967, as shown on Table 1-2. Since 1967, livestock operations have been converting from sheep to cattle. Because the public rangelands are better suited for sheep grazing, there has been further reductions in livestock grazing preference as changes in livestock have occurred. The level was 15,901 AUMs in 1977.



SOURCE: THREE CORNERS PLANNING DOCUMENTS

THREE CORNERS PLANNING UNIT VERNAL DISTRICT

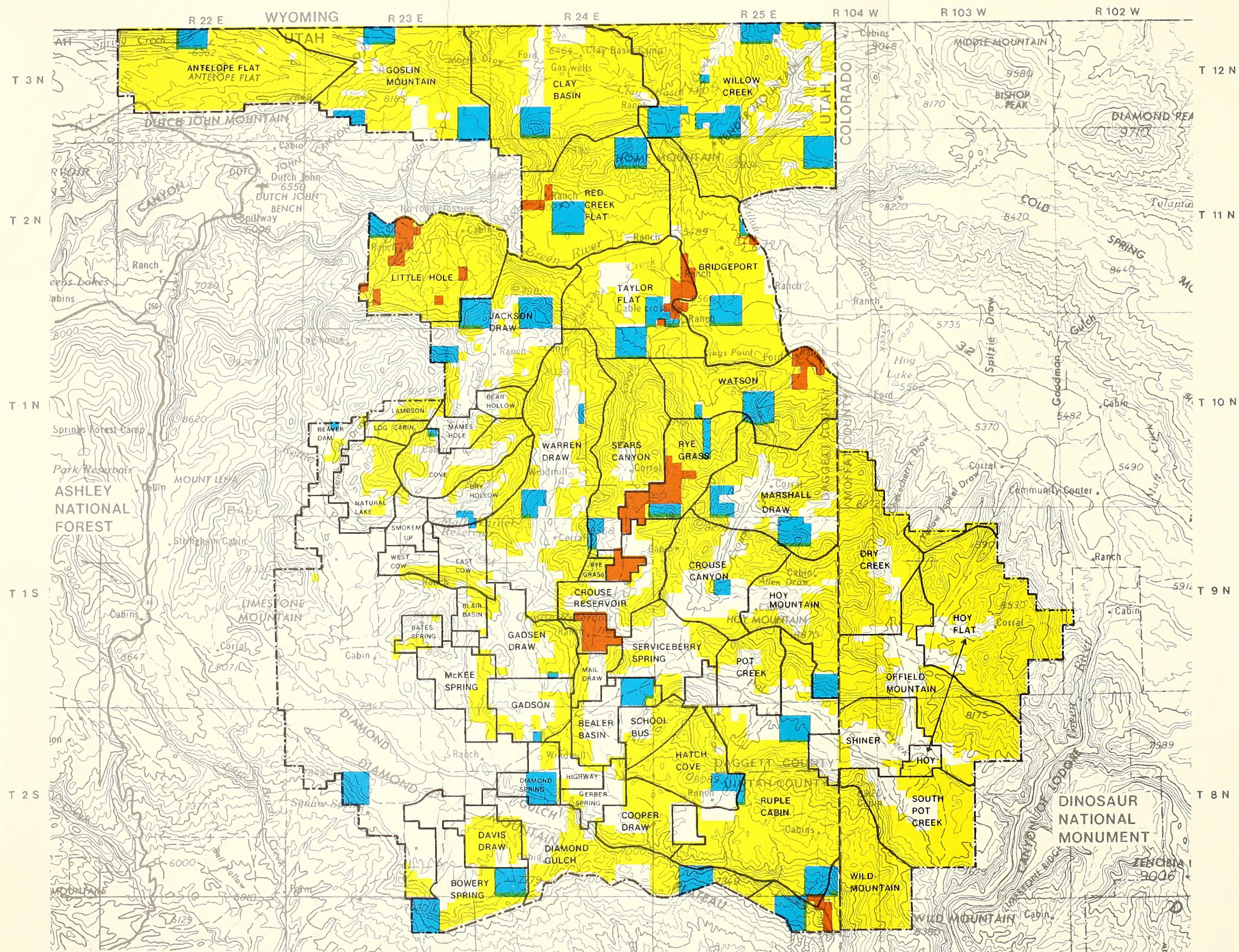
FIGURE 1-1

TABLE 1-1
Land Ownership Within Three Corners Planning Unit
Grazing Allotments

	Acres			
	Public Land	State	Private	Total
Utah	156,306 ^a	18,749	66,381	241,436
Colorado	34,230		7,130	41,360
Total	190,536 ^a	18,749	73,511 ^b	282,796

^aIncludes 22,215 acres of land under Bureau of Reclamation withdrawal where grazing is administered by the BLM.

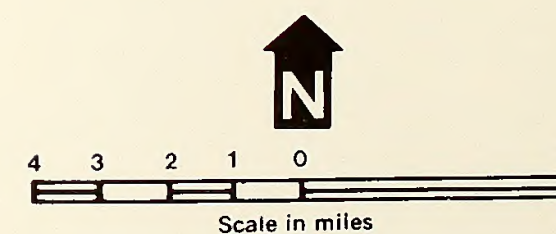
^bIncludes 3,581 acres of former private land within allotments which has been purchased for big game by wildlife agencies.



SOURCE: THREE CORNERS PLANNING DOCUMENTS

LEGEND

- LANDS PURCHASED FOR WILDLIFE PURPOSES
- PUBLIC LAND
- PRIVATE LAND
- STATE LAND



THREE CORNERS LAND OWNERSHIP

FIGURE 1-2

TABLE 1-2

Past Domestic Livestock Use

Year	Adjustments	Kind of Livestock	AUMs
1958	Start of adjudication.	Sheep	14,043
		Cattle	<u>12,640</u>
			26,683
1967	Completion of adjudication. Purchase of livestock grazing properties by Utah Division of Wildlife Resources and Fish & Wildlife Service.	Sheep	8,633
		Cattle	<u>11,517</u>
			20,150
1977	Many livestock operators changed from sheep to cattle.	Sheep	2,893
		Cattle	<u>13,008</u>
			15,901

Source: Three Corners Planning Documents.

EVOLUTION OF THE PROPOSED ACTION

The planning documents for the Three Corners Planning Unit were updated in 1978 in accordance with BLM manuals 1601-1608. The manuals provide guidance for land use and resource allocation on public lands administered by BLM.

Inventory data on land and resource conditions and capabilities were summarized, recorded, and analyzed in a document called the Unit Resource Analysis. Data on social and economic conditions were summarized, recorded, and analyzed in a document called the Planning Area Analysis. The two documents are the basis for the development of a Management Framework Plan (MFP) that addresses land uses and resource allocations within the Three Corners Planning Unit.

During Step 1 of the MFP, BLM resource specialists formulated individual resource recommendations for seven resource activities (range management, wildlife, watershed, forest products, recreation, minerals, and lands). Conflicts among the individual resource recommendations were identified and reconciled during Step 2 of the MFP. The resulting multiple-use recommendations concerning range management and related resources were the basis for the proposed action in this environmental statement. The evolution of the proposed action through the management framework plan process is summarized in Table 1-3.

Public and private groups, individuals, and government agencies interested in the Three Corners Planning Unit have been involved during the planning process (see Chapter 9). Following completion of this environmental statement and additional public involvement, the Vernal District Manager will complete Step 3 of the Management Framework Plan which will include the multiple use decisions for the grazing management program on the Three Corners Planning Unit.

PURPOSE AND PLANNING UNIT OBJECTIVES

The purpose of the proposal is to manage livestock grazing use on public land in a manner that would maintain or improve the range conditions and other related resources (e.g., soils, water, vegetation) while using the productive capacity of the resource on a sustained basis for livestock production. The rationale upon which the proposal is based comes from legal mandates (the Taylor Grazing Act, 1934, and the Federal Land Policy and Management Act, Public Law 94-579) which provide for livestock grazing as one of the multiple uses of the public lands.

The current goal to satisfy big game needs on public lands in the planning unit would continue, consistent with other multiple use factors. The program for livestock use would provide an initial livestock use at the current authorized (preference) level of 15,901 AUMs. The proposed program would provide for a small increase in livestock grazing use (approximately 10 percent) over a 20-year period. This increase in use would be authorized by nonrenewable grazing permits. These permits would be issued on an annual basis when forage is available, providing that there would be no conflict with other livestock operations on public lands or with the land use plans.

The multiple use grazing management objectives developed in Step 2 of the Management Framework Plan, and upon which the proposed action for this environmental statement is based, are listed on Table 1-4.

TABLE 1-3

Evolution of the Proposed Action
Through the MFP Process

Livestock MFP 1 Recommendations	Other Resource MFP 1 Recommendations That Conflict With Range	MFP 1 Conflicts	MFP 2 Range Recommendations	Rationale for MFP-2 Recommendations	Trade-Off
CONTINUE EXISTING MANAGEMENT					
A. License 179 AUMs's in Rye Grass Allotment for spring through fall livestock use.	Continue to provide all available forage (508 AUMs) in Rye Grass Allotment for elk and deer.	Competition for 179 AUMs of forage between live-stock and big game.	Do not allow livestock grazing on Rye Grass Allotment.	The Utah Division of Wildlife Resources owns the private land in the allotment. These lands are not fenced and livestock use would have to be restricted to public lands. The management objective for this allotment since 1963 has been to provide big game forage and this policy should be continued.	Potential allocation of 179 AUMs for livestock would be forgone.
B. Continue Allotment-Wide Management:				Allotments were selected for allotment-wide grazing based on one or more of the following criteria:	Potential permanent (prefer-ence) allocation of 1,230 AUMs for livestock foregone on Taylor Flat-Watson Allotment.
1. With present season-of-use and kind of livestock to provide 3,290 AUMs for livestock on the following allotments: Bates Spring Beaver Dam Blair Basin Bowery Spring Bridgeport Cove East Cow Gadsen Draw-Gerber Spring Highway Log Cabin Mail Draw Mames Hole-Bear Hollow McKee Spring Natural Lake Smokem-Up West Cow	1. Allocate 2,608 AUMs to big game on 16 allotments.	1. Competition for 1,722 AUMs of forage between livestock and big game.	Continue allotment-wide live-stock grazing with present season-of-use and kind of livestock to provide 2,545 AUMs for livestock and 3,772 AUMs for big game on 17 allotments. Continue to manage the Taylor Flat-Watson Allotment to emphasize big game forage. Continue to use livestock grazing (up to 1,000 AUMs) on a temporary non-renewable basis.	1. Less than 100 AUMs of forage available on public land in each allotment: (six allotments exceed 100 AUMs). 2. No identified conflict with resource uses, or opportunity to use this type of management to aid other resources (such as browse production for big game on Bridgeport and Taylor Flat-Watson allotments). 3. High percentage of interspersed private and state lands or combined terrain and land ownership factors. 4. Livestock forage condition on public land satisfactory (fair to good). 5. No identified conflicts from range management practices, low percentage of total forage on public land within allotment. (Forage on public land in the 17 allotments varies from 2 to 37 percent.)	Level of livestock use constrained by 1,975 AUMs of inventoried forage for big game on 17 allotments.
2. Change season of use and reissue preference livestock grazing to provide 1,230 AUMs on the Taylor Flat-Watson Allotment.	2. Continue to manage with emphasis on deer winter range to provide 1,141 AUMs of forage for big game on the Taylor Flat-Watson Allotment. Allow livestock use on an annual basis only as needed (up to 1,000 AUMs in the spring) to maintain browse in the vegetation composition.	2. Competition for 230 AUMs of forage in deer winter range; also con-flict in permanance (year-to-year amount) and season-of-use for livestock grazing.		Forage allocation in MFP-2 recommendation would continue the current livestock grazing levels and also continue to provide for big game winter range. Continued emphasis on big game winter range is important to regional deer populations. Flexibility in livestock grazing on the Taylor Flat-Watson Allotment, without legal constraints of a grazing preference, is desireable from a big game stand-point.	
C. Continue Existing Improved Management.					
1. With present season-of-use and kind of livestock to provide 5,292 AUMs for livestock on the following three allotments: Ruple Cabin (Rest Rotation, and Deferred Rotation) Dry Creek-South Pot Creek-Wild Mountain (Deferred Rotation) Hoy Mountain (Rest Rotation)	1. Allocate 1,634 AUMs of forage for big game on three allotments.	1. Competition for 845 AUMs of forage between livestock and big game.	Continue existing improved management with present season-of-use and kind of livestock to provide 4,666 AUMs initially for livestock on three allot-ments listed in MFP-L column, while allocating 4,814 AUMs for livestock in the long-term. Big game would be allocated 2,227 AUMs initially and allowed to increase to 2,446 AUMs in the long-term. Con-tinue temporary non-renewable livestock grazing of up to 672 AUMs to maintain browse for big game (812 AUMs) on the Red Creek Allotment.	The existing management is providing rest and deferment to allow completion of plant growth and reproductive requirements, while providing livestock and big game forage. Timing of the grazing period influences the expected results, such as spring grazing to promote browse or summer grazing to promote grass. Forage allocation would continue to present level of livestock use and also emphasis of deer winter range habitat. Livestock utilization and actual use studies show that the vegetation is properly used. Forage condition is fair to good with the exception of about 800 acres in poor condition on the Red Creek and Hoy Mountain allotments. The acres in poor condition have pinyon-juniper and coniferous vegetation and are not used by livestock.	Potential permanent (pre-ference) allocation of 1,040 AUMs for livestock forgone on Red Creek Allotment.
2. Change season-of-use and reissue preference livestock grazing to provide 1,040 AUMs on the Red Creek Allotment (Rest Rotation)	2. Continue to manage the Red Creek Allotment with emphasis on deer winter range to provide 812 AUMs for big game. Allow livestock use on an annual basis only as needed (up to 672 AUMs in the spring) to reduce grass and maintain desired browse in the vegetative composition.	2. Competition for 368 AUMs of forage; also conflict in permanance (year-to-year amount) and season of use for livestock grazing.		Flexibility in livestock grazing on the Red Creek Allotment, without legal constraints of a grazing preference, is desireable from a big game management standpoint.	Level of livestock use constrained by provision of 1,213 AUMs of inventoried forage for big game in four allotments.
3. Complete range developments proposed in existing AMPs (see last item listed on this table).					

TABLE 1-3 (concluded)

Livestock MFP 1 Recommendations	Other Resource MFP 1 Recommendations That Conflict With Range	MFP 1 Conflicts	MFP 2 Range Recommendations	Rationale for MFP-2 Recommendations	Trade-Off
IMPLEMENT IMPROVED MANAGEMENT					
A. Implement Improved Management with present season-of-use and kind of livestock, on 17 allotments:	Provide protection from livestock for streams and riparian areas in seven allotments: Bealer Basin-Diamond Gulch-Diamond Springs Davis Draw-Crouse Res.-Lambson Hoy Flat Little Hole Offfield Mountain Sears Canyon-Marshall Draw Willow Creek	Riparian and some limited fishery resource opportunities influenced by livestock concentrations along streams.	Implement improved management, with present season-of-use, and kind of livestock on the 17 allotments listed in the MFP-1 recommendation	On the allotments listed, the needs of key plant species can be met by providing improved management with periodic spring deferment of grazing. This treatment would delay grazing each year during the growing period on a portion of each allotment and would rotate this delay among pastures during the cycle. Rotation allows portions of the range to benefit from deferment (Stoddard, et al., 1975).	Maximum livestock use of 14,977 AUMs would not be realized, due to allocation of 5,068 AUMs of inventoried forage for big game.
Bealer Basin-Diamond Gulch-Diamond Springs Clay Basin-Antelope Flat-Goslin Mountain. Cooper Draw Davis Draw-Crouse Res.-Lambson Gadson Hatch Cove Hoy Flat Jackson Draw-Crouse Canyon-Dry Hollow Little Hole Offfield Mountain Pot Creek School Bus Sears Canyon-Marshall Draw Serviceberry Spring Shiner Warren Draw Willow Creek	Provide all available forage for expansion of big game, 10,044 AUMs at the 20th year. Allow livestock use only as needed (up to an estimated 9,909 AUMs annually) to maintain desired mix of forage for elk, deer, and antelope.	Competition for forage of up to 5,053 AUMs at the 20th year.	Continue the present level as an initial stocking rate while allowing 50 percent of the unused big game allocation to be allocated to livestock on an annual basis until expected increases occur in big game numbers (estimated at 11,560). As future increase in forage occur as a result of improved management, provide additional AUMs for livestock (estimated at 8,393 AUMs at the 20th year.)	Variations of deferred grazing would be designed for each of the allotments involved, although adjustments for each allotment would be carried out to fit specific amounts of spring and summer use.	Streams and riparian areas would not have livestock use excluded on the following allotments: Bealer Basin-Diamond Gulch-Diamond Spring Clay Basin-Antelope Flat-Goslin Mtn. Cooper Draw Davis Draw-Crouse Res.-Lambson Gadson Hatch Cove Hoy Flat Jackson Draw-Crouse Canyon-Dry Hollow Offfield Mountain Pot Creek School Bus Serviceberry Spring Shiner Warren Draw Willow Creek
Increase the present level of livestock use from 9,909 AUMs to 14,962 AUMs.			Provide allocation of forage for big game increases (estimated at 10,044 AUMs by the 20 year.	All variations of the deferred rotation treatment would require two or more pastures, with at least one of the pastures being rested during the spring growing period each year.	
As increases in forage occur as a result of improved management, provide additional AUMs for livestock (estimated at 1,493 AUMs at 20th year).				Since grazing would be deferred, opportunities would be improved in the spring for new plants to become established and for old plants to gain or maintain vigor. Grazing in early fall after seed ripe maturity would not affect plant vigor, but would provide opportunity for animals to scatter and trample seeds into the soil (Stoddart, et al., 1975).	
				Forage allocation would provide for high levels of big game production consistent with past commitments, while also enabling increases in livestock use. Livestock forage condition is generally fair to good.	
				Improved distribution of livestock is needed to allow use of existing forage. This can be done by means of water developments and fencing. Exclusion of livestock from all streams and riparian areas is of questionable practicality. The Green River is already fenced.	
B. Provide range developments needed for improved management: Spray or chain 1,660 acres of sagebrush in the Ruple Cabin (780), Davis Draw pasture (400), and Hoy Mountain (480) allotments in 1979. In 16 allotments develop 13 springs, 3 reservoirs, 15 miles of pipeline, 30 water troughs, 6 storage tanks, and 30 miles of fence with cattle-areas on public lands that are accessible to livestock).	Protect visual resources along the Green River Canyon. Protect cultural resource values throughout out the planning unit Protect potential wilderness values in roadless areas until wilderness review determinations have been conducted and areas cleared for development. Maintain habitat for upland birds and non-game species of wildlife. Protect watershed values and control soils erosion.	Range developments constrained by other resource requirements	Promote better livestock distribution through placement of fences and water development to reduce grazing pressure on streams and riparian areas and fence a total of 13 acres of riparian vegetation in two allotments (Little Hole, Sears Canyon-Marshall Draw) to exclude livestock grazing. Carryout range developments, while including mitigating measures to protect other resource values, and design range facilities to avoid or minimize adverse effects.	Range developments will facilitate improved management and livestock distribution. The other resources will be protected in the multiple use recommendation as mandated by law and BLM policy. Pasture level management would not be possible without additional fencing and water developments. Sagebrush control will allow livestock use of available forage (Davis Draw) and increase grass production for livestock and elk (Ruple Cabin and Hoy Mountain).	Implementation of some range developments may have to be delayed until wilderness reviews are completed. Local short-term disturbances would be unavoidable during chaining and construction work.

Source: Three Corners MFP.

TABLE 1-4

Three Corners Planning Unit Objectives
for Grazing Management

Objective	Public Land Acreage Involved ^a
1. Improve riparian vegetation from fair to good condition on two allotments (15.2 miles of stream bank) and maintain good riparian vegetation condition on 12 allotments (89.6 miles of stream bank).	135,551
2. Improve or maintain big game habitat and watershed conditions on 39 allotments by maintaining at least 25 percent vegetation ground cover on all vegetation types. The percent composition of desirable plants within these types should be maintained at approximately 60 percent, with big sagebrush making up 20 to 30 percent. Desirable plants are: sagebrush, mountain mahogany, bitterbrush, serviceberry, snowberry, wheatgrass, needlegrass, Indian ricegrass, elk sedge, bluegrass, junegrass, arrowleaf balsamroot, phlox, lupine, and daisy.	190,536
3. Reduce dense stands of sagebrush from 80 percent to make forage available in one allotment and allow proper implementation of existing AMPs on two allotments within 5 years.	1,660
4. Maintain existing livestock forage condition (good on 12,858 acres; fair on 6,789 acres; and poor on 786 acres) on 16 allotments.	20,433
5. Improve livestock forage condition from fair to good on 25,022 acres (50 percent of the current fair condition acreage), on 20 allotments exclusive of those acreage currently in Douglas fir and pinyon-juniper types.	25,022
6. Maintain present levels of livestock forage allocation (1,545 AUMs) on 16 allotments.	20,273
7. Increase livestock forage allocation from 14,356 AUMs to 16,216 AUMs (1,860 AUMs) on 20 allotments.	146,648
8. Provide 4,838 AUMs of forage for present elk populations and 3,458 AUMs forage for increased populations of elk. A total of 6,091 AUMs would be available for elk on 38 allotments.	182,078
9. Provide 355 AUMs of forage for existing antelope herds and 29 AUMs for increased antelope populations in 20 years. A total of 380 AUMs would be available for antelope on five allotments.	71,345
10. Provide 8,070 AUMs of forage for existing deer populations and 2,226 AUMs for increased deer populations in 20 years. A total of 10,296 AUMs would be available for deer on 39 allotments.	190,536

Source: Three Corners Planning Documents.

^a Acres are not additive, since objectives overlap various portions of the planning unit.

Allotment Objectives

Grazing would be managed on 39 allotments within the planning unit (see Figure 1-2). The allotments to which objectives apply are listed on Table 1-5.

Key plant species were used to develop the objectives for each allotment. These species are chosen for their relative palatability and nutritive value for livestock, big game, or both. Since they respond to changes in grazing and are well adapted to the area, they indicate range condition, trends in range condition, and intensity of browsing and grazing. Each allotment's key species are listed in Appendix 1-2.

The key plant species method of determining utilization would be used to prepare allotment management plans (AMPs) and later to help determine (along with range and habitat condition and trend) whether allotment objectives are being met. This method uses an ocular estimate of the degree to which selected forage plants (key species) are grazed or browsed. (BLM Manual 4412.22B7c describes the method in detail.)

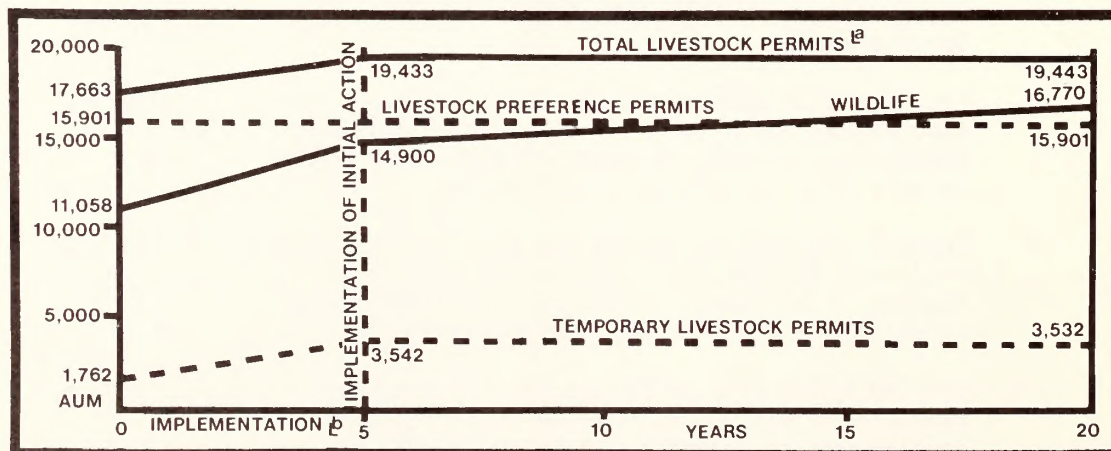
PROPOSED ACTION

Forage Allocation

The principal issue of the proposed action is the allocation of forage among the predominant consumptive users: cattle, sheep, deer, elk, and antelope. Two basic types of forage are involved: (1) vegetation which meets livestock dietary needs and (2) vegetation which meets big game dietary needs. When a plant species is used by both livestock and big game, the forage use overlaps. This dietary overlap determines competitive forage.

The proposed initial (year one) big game allocation includes an estimated 8,350 AUMs of non-competitive forage--forage which is not usable by livestock. Allocation of this non-competitive forage to big game would not result in any reduction of forage allocated to livestock.

A graphic representation of the proposed forage allocation in the planning unit is presented on Figure 1-3. Existing use and proposed allocation of forage for the Three Corners Planning Unit is summarized on Table 1-6. (A detailed listing is presented in Appendix I-3).



^a THIS CATEGORY INCLUDES TEMPORARY AND PREFERENCE PERMITS
^b THREE TO FIVE YEARS

PROPOSED FORAGE ALLOCATION

FIGURE 1-3

TABLE 1-5
Primary Objectives by Allotment^a

Proposed Action Sub-component and Allotment	1	2	3	4	5	6	7	8	9	10
<u>CONTINUATION OF EXISTING MANAGEMENT</u>										
<u>No Livestock Grazing</u>										
Rye Grass		X						X		X
<u>Continue Allotment-Wide Grazing</u>										
<u>Spring (April and May only)</u>										
Bridgeport	X	X				X		X	X	X
Taylor Flat-Watson	X	X						X	X	X
<u>Spring and Fall (Begin in May)</u>										
Bowery Spring		X		X		X		X		X
Gadson Draw-Gerber Spring		X		X		X		X		X
Highway		X		X		X		X		X
McKee Spring		X		X		X		X		X
Natural Lake		X		X		X		X		X
Smokem-up		X		X		X		X		X
<u>Spring-Summer-Fall (Begin in May and June)</u>										
Bates Spring		X		X		X		X		X
Beaver Dam	X	X		X		X		X		X
Blair Basin		X		X		X		X		X
East Cow		X		X		X		X		X
Log Cabin		X		X		X		X		X
Mail Draw		X		X		X		X		X
Mame's Hole-Bear Hollow		X		X		X		X		X
<u>Spring-Summer (Begin in June)</u>										
Cove		X		X		X		X		X
West Cow		X		X		X		X		X
<u>Continue Existing Improved Management</u>										
<u>Rest Rotation</u>										
Hoy Mountain (Spring, Summer, Fall Grazing)		X	X		X		X	X		X
Red Creek (Spring Grazing)	X	X		X					X	X
<u>Deferred Rotation</u>										
Dry Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)		X			X		X	X		X
<u>Rest Rotation and Deferred Rotation</u>										
Ruple Cabin (Spring, Summer Grazing)	X	X	X		X		X	X		X

TABLE 1-5 (concluded)

Proposed Action Sub-component and Allotment	1	2	3	4	5	6	7	8	9	10
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>										
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>										
Clay Basin-Antelope Flat- Goslin Mountain	X	X			X		X	X	X	X
Gadson		X			X		X	X		X
Hatch Cove		X			X		X	X		X
Hoy Flat		X			X		X	X		X
Jackson Draw-Crouse Canyon-Dry Hollow	X	X			X		X	X		X
Little Hole	X	X			X		X	X		X
Offield Mountain	X	X			X		X	X		X
Pot Creek		X			X		X	X		X
School Bus		X			X		X	X		X
Sears Canyon- Marshall Draw	X	X			X		X	X		X
Serviceberry Spring	X	X			X		X	X		X
Shiner		X			X		X	X		X
Warren Draw	X	X			X		X	X		X
Willow Creek	X	X			X		X	X	X	X
<u>Spring and Fall, With Periodic Spring Deferment</u>										
Bealer Basin-Diamond Gulch-Diamond Spring	X	X			X		X	X		X
Cooper Draw		X			X		X	X		X
Davis Draw-Crouse Reservoir-Lambson	X	X	X		X		X	X		X

^aSee Table 1-4 for description of objectives.

TABLE 1-6

Summary of Existing Forage Use and Proposed Forage Allocation^a

Proposed Action Component and Subcomponent	Forage Production AUMs	Existing Livestock and Big Game Grazing Situation					Proposed Forage Allocation (AUMs)			
		Present Livestock Use ^b				Est. Current Big Game Use (AUMs)	Initial		Long-Term (20th Year)	
		Kinds	No.	AUMs Pref.	AUMs Actual		Livestock	Big Game	Livestock	Big Game
Continuation of Existing Management Total	14,390	Shp. Cat.	10,055 2,895	5,992	6,082	4,324	7,883	6,507	8,031	6,726
No Livestock Grazing (1 allotment) subtotal (2,860 acres)	508	0	0	0	0	436	0	508	0	508
Continue Allotment-wide Grazing (17 allotments) subtotal (32,570 acres)	6,317	Shp. Cat.	10,055 1,172	1,545	1,653	2,191	2,545	3,772	2,545	3,772
Spring (2 allotments)	2,935	Cat.	484	139 ^d	688	1,411	1,139 ^c	1,796	1,139	1,796
Spring and Fall (6 allotments)	2,046	Shp.	7,365	695	263	354	695	1,351	695	1,351
Spring, Summer, Fall (7 allotments)	890	Shp. Cat.	2,690 253	437	428	259	437	453	437	453
Spring, Summer (2 allotments)	446	Cat.	435	274	274	167	274	172	274	172
Continue Existing Improved Management (4 allotments) subtotal (39,538 acres)	7,565	Cat.	1,723	4,447	4,429	1,697	5,338	2,227	5,486	2,446
Rest-Rotation (2 allotments)	2,265	Cat.	675	552 ^d	1,201	731	1,224 ^c	1,041	1,291	1,041
Deferred Rotation (1 allotment)	2,359	Cat.	398	1,446	1,021	646	1,579	780	1,637	913
Deferred Rotation and Rest Rotation (1 allotment)	2,941	Cat.	650	2,449	2,207	320	2,535	406	2,558	492
Implementation of Improved Management (17 allotments) total (15,568 acres)	19,953	Shp. Cat.	6,200 2,535	9,909	7,870	6,734	11,560	8,393	11,402	10,044
Spring, Summer, and Fall, with spring deferment (14 allotments)	15,767	Cat.	2,535	7,873	6,500	6,139	8,747	7,020	8,985	7,894
Spring and Fall, with Spring deferment (3 allotments)	4,186	Shp.	6,200	2,036	1,370	595	2,813	1,373	2,417	2,150
GRAND TOTAL	34,343	Shp. Cat.	16,255 5,430	15,901 ^e	13,952	11,058	19,443 ^{c,e}	14,900	19,433 ^e	16,770

Source: Three Corners Planning Documents.

^aAppendix I-3 contains the details of the existing forage use and proposed forage allocation; it also contains additional explanatory footnotes.^bNo. = Number of animals, Cat. = cattle, Shp. = sheep, Pref = Preference, Actual = 5 year average use.^cIncludes temporary annual use 1,000 AUMs on Taylor Flat-Watson and 672 AUMs on Red Creek which would be permitted with non-renewable permits.^dDoes not include non-renewable permits.^eTemporary non-renewable permit up to 3,442 AUMs initial and 3,432 AUMs in the long-term would be allocated in addition to the 15,901 AUMs of preference allocation. The long-term 3,432 AUMs could be converted to preference when monitoring verifies the forage to be available.

The proposed allocation of forage was based upon ocular reconnaissance livestock forage inventories as well as utilization, actual use, condition, and trend data where available. Thirty-eight percent of the planning unit was inventoried in 1958 and the remainder was inventoried in 1976. Estimates have been used in some aspects of the proposal where field data are lacking. Where future projections are included, a 10 percent increase in forage production is predicted for allotments where improved management would occur. Appendix I-4 describes the forage inventory methods and the forage allocation methods that were used in the development of the proposal.

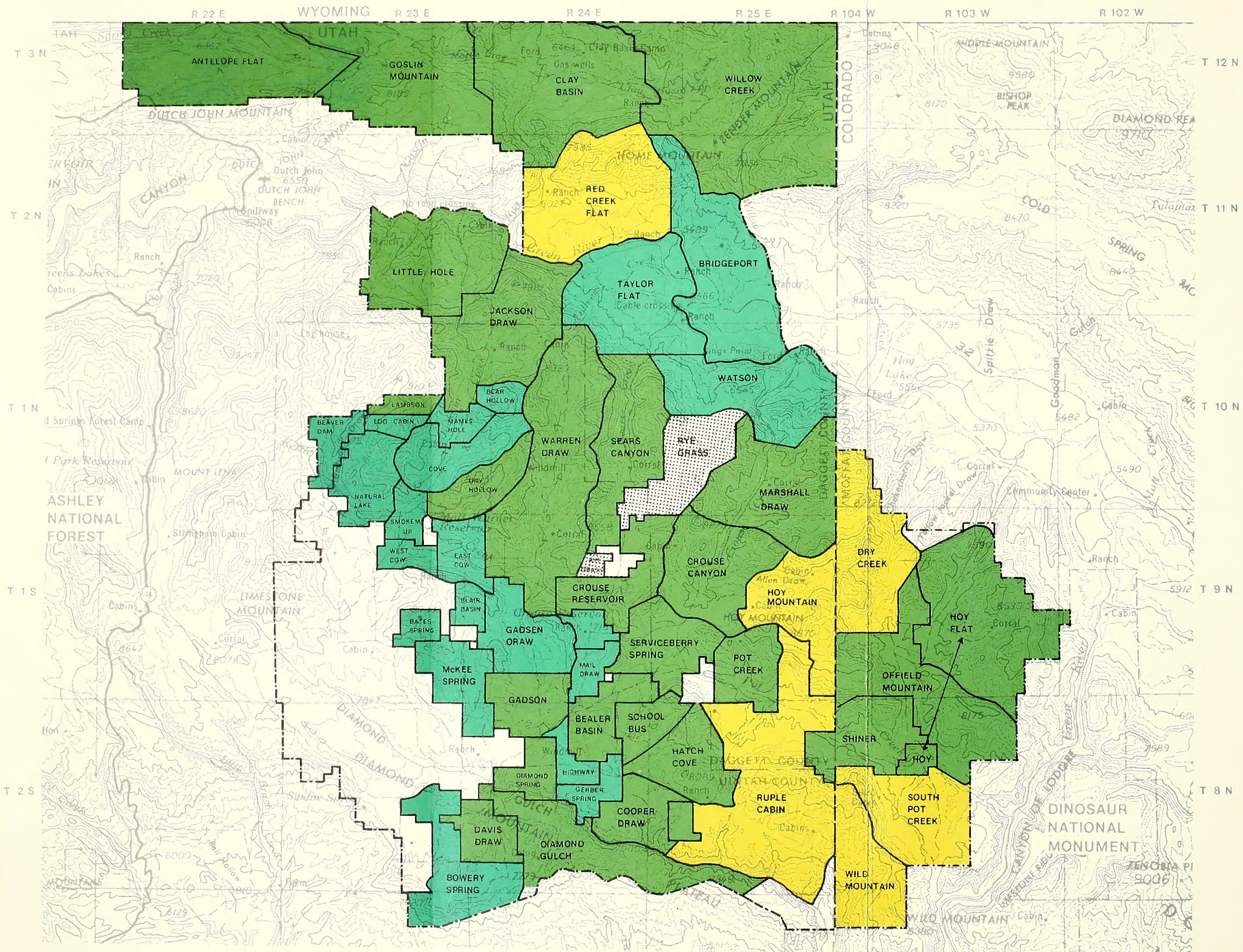
As shown on Figure 1-3, it is proposed to allow temporary livestock use of competitive forage allocated to wildlife until big game populations increase. The forage can be made available to livestock by installation of range developments. It would then be used by livestock on an annual, nonrenewable basis until needed by big game. This and other temporary adjustment could result in year-to-year forage uses by livestock and big game that vary somewhat from the proposed allocation.

Components of the Proposal

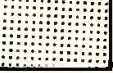
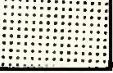
The proposed action is divided into two major components: (1) Continuation of Existing Management, and (2) Implementation of Improved Management. It is further divided into sub-components (shown on Table 1-6). Figure 1-4 shows the areas which would be managed under each sub-component. Sub-components are divided into groups of like allotments which would be managed in a common fashion (Appendix I-3).

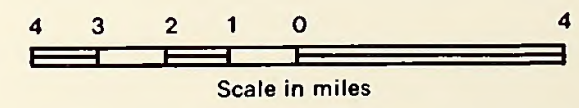
Allotments would be managed by applying grazing and resting treatments arranged in various combinations. Rational for these treatments appear in Appendix I-5. Treatments would be designed to promote a desirable level of livestock use while meeting other resource needs through livestock management. Examples of treatments are shown on Figure 1-5. Major criteria considered in selecting grazing and resting treatments include:

1. Wildlife. Species present, seasons of use, forage and habitat needs, and critical areas were considered in order to determine how grazing and resting treatments would affect wildlife values.
2. Watershed. Watershed conditions and soil characteristics were evaluated to identify potential problem areas and to determine how grazing and resting treatments would affect soil productivity and water quality.
3. Livestock. Seasons of use, numbers, kind of livestock, food preferences, habits, and husbandry needs, were used to determine effects of grazing and resting treatments upon livestock operations.
4. Vegetation. Conditions, production, and physiological requirements were evaluated to determine the effects that grazing and resting treatments would have upon growth and reproduction of key plant species.
5. Climate. Temperature, precipitation patterns were evaluated to determine their effects upon the treatment viability.



LEGEND

-  CONTINUATION OF EXISTING MANAGEMENT
-  NO LIVESTOCK GRAZING
-  CONTINUE ALLOTMENT-WIDE GRAZING
-  CONTINUE EXISTING IMPROVED MANAGEMENT
-  IMPLEMENTATION OF IMPROVED MANAGEMENT
-  IMPLEMENT IMPROVED GRAZING MANAGEMENT



SOURCE: THREE CORNERS PLANNING DOCUMENTS

COMPONENTS OF THE PROPOSAL
FIGURE 1-4

ALLOTMENT WIDE

YEAR	TREATMENT											
1	REST					GRAZE				REST		
2	REST					GRAZE				REST		
3	REST					GRAZE				REST		
MONTH	J	F	M	A	M	J	J	A	S	O	N	D

REST ROTATION

YEAR	PASTURE	TREATMENT													
1	1	REST			REST										
	2	REST						REST							
	3	REST													
2	1	REST						REST							
	2	REST													
	3	REST					REST								
3	1	REST													
	2	REST					REST								
	3	REST						REST							
4	1	REPEAT SEQUENCE													
	2														
	3														
MONTH		J	F	M	A	M	J	J	A	S	O	N	D		

DEFERRED ROTATION

YEAR ¹	PASTURE	TREATMENT												
1	1	REST				GRAZE		REST						
	2	REST						GRAZE	REST					
	3	REST						GRAZE		REST				
	4	REST								GRAZE	REST			
	5	REST									GRAZE	REST		
MONTH		J	F	M	A	M	J	J	A	S	O	N	D	

IN FOLLOWING YEARS, SEQUENCE OF GRAZING ROTATES; ie., PASTURE 1
FOLLOWS PASTURE 2 SCHEDULE, PASTURE 2 FOLLOWS PASTURE 3 SCHEDULE,
PASTURE 5 FOLLOWS PASTURE 1 SCHEDULE ETC.

TYPICAL TREATMENTS

FIGURE 1-5

6. Range Developments. Existing developments and costs of additional fencing and water developments were considered to determine additional costs needed to support range management.
7. Land. Ownership patterns were considered in order to coordinate the grazing of public lands with grazing on private land, state land, and Forest Service land.

Utilization of up to 60 percent of key species current growth is proposed, which is generally classified as moderate (BLM Manual 4412). The utilization limit, together with season of use considerations is expected to provide for the physiological needs of the key species (unpublished Range Study Data, 1967-1974 Vernal District).

The proposal would combine 53 allotments into 39 allotments for administrative and operational purposes. These allotment combinations are presently grouped on an informal basis in that each group is currently used by one operator. No mixing of livestock operations would be required and only one grazing permit would be issued for each combination. An exception is in Clay Basin-Antelope Flat-Goslin Mountain combination where two operators use the Clay Basin Allotment and only one of them uses the other allotments. Most of these combined allotments are fenced and formalizing the combinations would not require extensive range developments. One AMP would be prepared for each allotment combination to ensure a common management approach. (One combined allotment having more than one operator, Dry Creek-South Pot Creek-Wild Mountain, is now formally combined in the existing AMP.) The other two community allotments in the planning unit would not be involved in allotment combinations.

Proposed developments are summarized on Table 1-7 and a detailed listing is found in Appendix I-6. These include fences, spring development, water pipelines, water troughs, storage tanks, reservoirs, and sagebrush control. The sagebrush control would include spraying 1,260 acres with 2,4-D on two allotments. Appendix 1-7 lists the existing developments. Monitoring would be conducted as shown on Page 1-26.

Continuation of Existing Management

This component of the proposed action consists of three sub-components and would affect 22 allotments and 74,968 acres of public land in the planning unit. Rational for the type of management to be applied to the sub-component is found in Table 1-3.

No Livestock Grazing

The Rye Grass Allotment (2,860 acres) would be reserved for big game. The continued reservation for big game is based upon increasing needs for deer winter and elk range in the planning unit. The Utah Division of Wildlife Resources purchased the base property from the former allotment user and BLM has retired the grazing privileges. Livestock have not been permitted on the allotment since 1963. Continuing present management would honor existing interagency commitments to emphasize big game forage production.

TABLE 1-7

Summary of Proposed Developments

Components	Developments					Sagebrush Control ^b
	Water Pipelines	Water Troughs	Storage Tanks	Spring Development	Reservoirs	Fences ^a
<u>Continuation of Existing Management (22 allotments)</u>	4 (6.5 mi.)	13	4	1	None	None 1,260 ac.
<u>Implement Improved Management (17 Allotments)</u>	2 (8.5 mi.)	17	2	12	3	31 mi. 400 ac.
<u>Total (39 allotments)</u>	6 (15 mi.)	30	6	13	3	31 mi. 1,660 ac.

Source: Three Corners Planning Documents.

^aIncluded is enough fencing for 13 acres of riparian vegetation which is accessible to livestock along 3.5 miles of shoreline on public lands on the following creeks: Davenport 0.5, Jackson 1.4, Crouse 0.4, and Sears 1.2.

^bOne thousand two hundred and sixty acres on Ruple Cabin and Hoy Mountain would be sprayed with 2,4-D; 400 acres would be chained on Davis Draw.

Allotment-Wide Grazing

Present allotment-wide grazing management would continue on 32,570 acres of public land on 17 allotments (see Appendix I-3). These allotments are divided into four subcomponents based in season of use as follows:

Spring (April and May only)	-	2 allotments
Spring and Fall (May and June and September through October)	-	6 allotments
Spring-Summer-Fall (begin in May or June and continue into October or November)	-	7 allotments
Spring-Summer (begin in June through September 15)	-	2 allotments

On these allotments, livestock would be allowed to graze an entire allotment during the designated grazing season each year. Except for the Bridgeport and the Taylor Flat-Watson allotments, BLM's management opportunities are limited because private lands within allotments contribute 63 to 98 percent of the total forage produced. Continuation of existing management on the Bridgeport and the Taylor Flat-Watson allotments is intended to meet the objectives of enhancing big game habitat and forage. Use on the other 15 allotments, during the critical spring, summer, and fall growth periods, is designed to capitalize on the high palatability of key forage species during these seasons. Limiting use on key species to 60 percent should perpetuate the allotment's existing forage condition and trend. Bridgeport contains the only range in poor forage condition (as shown on Table I-3).

Existing Improved Grazing Management

Existing improved management would continue on 39,538 acres of public land where forage is improving condition. This includes the four allotments now under AMPs (see Appendix I-3). Two allotments are managed under rest-rotation grazing systems. One allotment is under a deferred-rotation grazing system. One allotment uses a rest rotation system on five of its pastures and deferred rotation grazing system on three pastures. Pastures are generally equally divided by forage production. Grazing treatments are rotated so that at the end of each cycle each pasture would have received equal treatment, that is, all pastures would be grazed and rested the same amount of time. Forage conditions are now improving in response to the treatments. Red Creek Allotment would be grazed by livestock in April and May to meet the objectives of enhancing big game habitat and forage.

Implementation of Improved Management

This component of the proposed action would involve 17 allotments and 115,568 acres of public land in the planning unit (see Appendix I-3). A total of 14 allotments would receive spring, summer, and fall grazing. Grazing during the spring would be periodically deferred. Three allotments would receive spring and fall grazing with periodic spring deferrment and grazing

treatments. The rationale for the type of management to be applied to this sub-component is found in Table 1-3.

Monitoring and Study Programs

All components of the proposed action would be monitored to determine if management objectives (Tables 1-4 and 1-5) were being met. The program would include an evaluation, at the conclusion of grazing treatments for utilization of key species and forage species, and at the end of each grazing cycle (3 to 4 years for any changes in plant composition, ground cover, and forage condition. Four primary studies would be basic to the evaluation: actual grazing use, vegetation utilization, range trend, and climate analyses (BLM Manual Section 4413.3). In addition, wildlife habitat, riparian vegetation, aquatic habitat utilization and trends, and watershed condition would be evaluated if these resource values occur on an allotment.

Data from these studies would be evaluated to determine management effectiveness and to assist in making adjustments. The proposed action would be modified if evaluation determined that specific allotment objectives were not being achieved. Modifications could include changes in the grazing system, livestock numbers, seasons of use, additional range developments, or a combination of adjustments which would attain management objectives. Significant modifications would require preparation of an environmental assessment record or a supplement to this environmental statement.

Standard Design, Construction, and Operation Features

The following protective measures would be required as standard design, construction, or operation procedures. These measures would be required to protect resource values and limit adverse impacts associated with the proposed grazing management program.

1. No permanent trails or roads would be constructed to project sites. Existing access would be used. Disturbance at all projects would be held to a minimum.
2. No clearing of the project sites would be allowed except on sites requiring excavation.
3. Disturbed areas would be seeded in order to replace ground cover on the sites and minimize losses of soil. Seeding would generally be done during the fall.
4. A survey of potential habitat for threatened or endangered species (including any species under consideration for formal designation as threatened or endangered) would be made prior to taking any action that could affect these species. Should BLM determine there may be an effect on listed species, formal consultation with the U.S. Fish and Wildlife Service would be initiated.
5. Intensive archaeological surveys and clearance would be required for all project sites (as specified in BLM Manual 8111.14) prior to new construction. Properties eligible for inclusion in the National Register of Historic Places would be identified

in consultation with the appropriate State Historic Preservation Officer as specified in 36 CFR 800.4 and 36 CFR 63. Wherever possible, sites would be avoided. Where avoidance is not possible, mitigation of adverse effects in sites eligible for the National Register would be undertaken in compliance with 36 CFR 800. Sites discovered during construction or other activities authorized by BLM would be evaluated and managed as specified in 36 CFR 800. A memorandum of understanding with the Utah State Historic Preservation Officer regarding protection of cultural resources is presented in Chapter 9. A letter of agreement from the Colorado State Historic Preservation Officer also appears in Chapter 9.

6. Public lands in the planning unit will be evaluated for wilderness characteristics during the BLM wilderness inventory process. The present wilderness guidelines do not allow any proposed actions within identified roadless units that would impair their suitability for wilderness designation. All proposed range developments would be subject to the wilderness guideline constraints. Proposed range developments within roadless units would be delayed, modified, or eliminated depending upon final disposition of the roadless unit.
7. An environmental assessment record (EAR) would be required prior to construction of proposed range developments and implementation of allotment management plans. The EAR, written to conform with BLM Manual 1791, would be site specific and would supplement the environmental analysis contained in this ES. Archaeological resources, threatened and endangered species, visual resource guidelines, wilderness, biological areas, and Wild and Scenic River designation would be considered within the EAR.
8. The two allotments (Hoy Mountain and Ruple Cabin) where sagebrush would be controlled by aerial spraying in the spring. The area would not be grazed by livestock until the existing understory vegetation became well established (to regain vigor) and capable of supporting livestock grazing. A minimum of two complete growing seasons of rest with no livestock grazing would be required. The provision for this rest would be incorporated into the presently implemented rest rotation grazing systems on these two allotments. These treatments would insure recovery on desirable vegetation.
9. Each year, water developments would be periodically inspected to ensure that they remain in usable condition. Preventive maintenance would be performed as needed. Cooperative agreements with range users would be solicited by BLM for range developments. Agreements would outline specific project maintenance responsibilities.
10. When possible, water for wildlife would be maintained throughout the year at established watering facilities.

11. The appropriate federal official would be notified if vertebrate paleontological remains are encountered during construction. Recovery, protection, and preservation measures would then be implemented as necessary to mitigate adverse impacts.

Additional design restrictions specifically applicable to proposed range developments are summarized in Table 1-8.

Development and Maintenance Costs

The Vernal District grazing management program would incur increased costs from implementation and management of the proposal. The range user would also have increased costs associated with maintenance of proposed range developments, such as fences and water developments other than pipelines and springs. The additional costs would primarily be encountered in the following areas:

1. Administrative costs of AMP development and management.
2. Design and construction of proposed range developments, including vegetative treatments.
3. Maintenance of range developments.
4. Livestock use supervision, monitoring, and evaluation of the proposal once implemented.

Construction of proposed range developments and completion of sagebrush control operations would cost an estimated \$196,600 as shown on Table 1-9. Annual maintenance of existing (existing developments are listed in Appendix I-6) and proposed range developments would cost an estimated \$20,000 for BLM and \$30,000 for the livestock operators as shown on Table 1-10. Cost figures for supervision, administrative, and monitoring would be dependent on funding levels, rate of implementation, and district priorities.

Implementation

BLM would implement the grazing management program through AMPs. BLM personnel and affected livestock operators would develop each AMP in order to ensure agreement. After finalization (including agreement by affected livestock operators), each AMP would be implemented by decision of the District Manager. If BLM personnel and affected livestock operators failed to reach agreement, an AMP that provided for the protection of the resource would be implemented by decision of the District Manager. The livestock operator would, however, have the right to appeal any such decisions. Included in the decision would be identification of both the BLM and range user's responsibilities for development and maintenance of range facilities and accomplishment of sagebrush control. Also included in the decision would be the identification of BLM's and range user's responsibilities for monitoring of the AMP.

Details of the proposed action would be further refined and specifically matched to resource conditions during preparation of AMPs and proposed developments could vary from those described at this stage of planning.

DESCRIPTION OF THE PROPOSAL

TABLE 1-8

Summary of Project Design Restrictions

Sagebrush Control By Chaining	Sagebrush Control By Spraying	Water Developments ^a	Fences
1. Examination of physical site factors, such as slope, exposure, soil depth, and erosion susceptibility would be criteria used in selecting sites.	1. Examination of physical site factors, such as slope, exposure, soil depth, seeding suitability, and erosion susceptibility would be criteria used in selecting sites. Manual 92.20 guidelines would be followed.	1. Actual work in spring and stream beds done by hand where possible. If machinery were needed in these areas, rubber-tired tractors would be utilized to reduce damage.	1. Off-road vehicular traffic during construction would be held to a minimum.
2. Configuration and patterns would be in conformance with visual resource management guidelines.	2. Prescribed spraying plan required that would identify application procedures, environmental conditions where allowed, controls, and coordination responsibilities. This plan would be submitted to the Washington Office prior to implementation.	2. After construction of spring head boxes, troughs, pipelines, and well sites, the areas would be cleaned up and refuse removed.	2. Fence posts would be colored to blend in with surroundings except where visibility is required for safety.
3. Areas within 1/2 mile of sage grouse strutting grounds would not be chained or railed. This conforms with guidelines developed by the Western States Sage Grouse Committee.	3. Projects would not exceed State and EPA pollution standards. Application of chemicals would conform to EPA regulations and BLM requirements.	3. Cuts, fills, excavations would be dressed and blended with surroundings. Pipelines would be buried where possible.	3. Where fences would cross existing roads, either gates or cattleguards would be installed.
4. Areas within 1/2 mile of riparian zones would not be chained or railed.	4. Configuration and patterns would be in conformance with visual resource management guidelines.	4. Original water sources would be protected, fenced if required, and an off-stream source provided near the site.	4. Gates would be installed along fence lines at regular intervals.
5. Areas within 200 feet of roads would not be chained or railed.	5. Areas within 1/2 mile of sage grouse strutting grounds would not be sprayed. This conforms with guidelines developed by the Western States Sage Grouse Committee.	5. Size of storage tanks and troughs would be designed to accommodate expected needs of animals using each source.	5. Vegetation clearance would be held to a minimum.
6. Steep drainages (over 30 percent slope) would not be chained or railed.	6. Areas within 1/2 mile of riparian zones and live water would not be sprayed.	6. Overflow would be discharged from tank sites, wells cased to prevent cave-in and well sites would be fenced.	6. In big game areas, fences would be designed to accommodate movement of big game per BLM 1737 fencing manual.
	7. Chemical spray would only be applied when winds are less than 5 miles per hour to control drift.	7. Storage structures would be designed to provide water to wildlife (animals and birds). Drinking ramps would be installed and heights would not prohibit young animals from obtaining water.	7. Four strand barbed wire fence would be constructed on cattle allotments outside antelope areas.
		8. Water development would be located and designed within visual resource management guidelines.	8. Three strand wire fences with the top two being barbed wire and the bottom wire being smooth wire (16 inches above the ground) would be used on cattle allotments within antelope areas.

TABLE 1-8 (concluded)

Sagebrush Control By Chaining	Sagebrush Control By Spraying	Water Developments ^a	Fences
		9. Water troughs would be designed to provide small animal escape ramps. The lip of the water trough would not be higher than 2 feet above ground. If water flow from springs is sufficient, water would be maintained in all troughs between May 1 and Oct. 30. Overflow discharge would be a minimum of 50 feet from the trough. Overflow areas would be fenced to exclude live-stock from the area of discharge.	9. Woven wire fence with one strand of barb wire on top would be used on sheep allotments. These are all outside antelope areas.
			10. All structures would be in conformance with visual resource management guidelines.

Source: Three Corners Planning Documents.

^aWater developments include earthen reservoirs, spring developments, water storage tanks, water pipelines, and water troughs.

TABLE 1-9

Estimated Costs of Proposed Range Developments

Item	Quantity	Estimated Acres Surface Disturbances	Estimated Unit Cost	Total
Fence	30 mi.	60	\$3,200 per mi.	\$ 96,000
Spring Development	13	3	\$1,000 each	\$ 13,000
Water Troughs	30	6	\$ 600 each	\$ 18,000
Water pipeline	15 mi.	18	\$2,000 per mi.	\$ 30,000
Storage Tanks	6	1	\$2,000 each	\$ 12,000
Earthen Reservoirs	3	1	\$6,000 each	\$ 18,000
Sagebrush Control	1,660 ac.	<u>1,660</u>	\$6 per ac.	\$ <u>9,600</u>
Total		1,749		\$196,600

Source: Appendix I-6.

TABLE 1-10

Development Maintenance Costs

	Estimated BLM Expense	Estimated Operator Expense	Total
Annual Maintenance Cost of Existing Range Developments	\$10,000	\$15,000	\$25,000
Additional Maintenance Costs for Proposed Range Developments	\$10,000	\$15,000	\$25,000
Total	\$20,000	\$30,000	\$50,000

Source: Three Corners Planning Documents.

Administration

The proposed action would be administered and managed through standard BLM operating procedures. Each livestock operator would be issued term permits through the BLM Vernal District Office. These would specify allotment, season of use, numbers, and kind of livestock.

Livestock grazing use would be supervised throughout the year. Marking of livestock (preferred methods would be ear tagging or paint marking) may be required to monitor livestock movement and proper stocking rates. Any changes in use must be requested in writing by the livestock operator prior to the grazing period. Changes could be beyond the limits of the proposed action, if they were consistent with management objectives. Grazing use outside the limits of the proposal and without prior authorization would be considered trespass. If trespass should occur, BLM would take action to assure it is eliminated and that payment is made for forage consumed.

The BLM would also make adjustments in the range management program during drought or other emergencies. Such adjustment would be designed to accomplish grazing management objectives. Range condition, competition with wildlife, amount of available forage and water, and time of year would be considered in any decision to move livestock in the event of drought or other temporary problems. In no case, would forage utilization by livestock be allowed to exceed an average of 60 percent of key species.

Adjustments could be made to:

- 1) Authorize the movement of livestock from one pasture to another ahead of schedule if forage were lacking in the first pasture and available in the second.
- 2) Hold livestock on an allotment or in a pasture longer than scheduled, if utilization has not reached 60 percent.
- 3) Reduce livestock numbers if forage production were lacking during any one season or growing year.
- 4) Increase livestock numbers temporarily if there were an unexpected abundance of forage production during a particular year.
- 5) Increase or decrease livestock numbers temporarily to achieve a predetermined degree of utilization. (For example, if achieving a degree of hedging on browse species were desirable to improve wildlife habitat, a temporary increase in livestock numbers might be warranted.)

Schedule

The goal is to attain specific management objectives within a maximum of 20 years after proposal implementation. The proposed grazing management program would be implemented over a 5-year period following filing of the final Three Corners Environmental Statement. Two additional employees would be required in BLM's Vernal District to implement the proposal within this time span. An implementation schedule is presented in Table 1-11.

TABLE 1-11

Grazing Mangement Program Implementation Schedule

Year	Action
1	Continue present allotment-wide grazing on 14 allotments. Maintain no livestock grazing on one allotment (Rye Grass). Continue present livestock management on four allotments and complete developments and sage brush control on these allotments. Developments would be 5 miles of water pipeline, 10 water troughs, and 3 storage tanks. Sagebrush control would be accomplished on 1,260 acres. Write AMPs for 17 allotments with improved management.
2	Implement improved management on Pot Creek, School Bus, and Antelope Flat-Clay Basin-Goslin Mountain allotments. Developments would be 1 spring developed, 6.5 miles of water pipeline, 13 water troughs, 1 storage tank and 4 miles of fence.
3-5	Implement improved management on 14 allotments. Order of implementation would be determined by annual funding levels and the length of time required to complete specific proposed range developments and sagebrush control. Developments would include 12 springs developed, 3 reservoirs, 4.5 miles of pipelines, 7 water troughs, 2 storage tanks, and 26 miles of fence. Sagebrush control would be accomplished on 400 acres.

INTERRELATIONSHIPS WITH OTHER FEDERAL, STATE, AND PRIVATE GRAZING
PROGRAMS, PLANS, AND POLICIES

Federal and state agencies having programs which interrelate with the proposed action are the U.S. Forest Service, National Park Service, Utah State Lands Division, Utah Division of Wildlife Resources, Wyoming Game and Fish Department, and Colorado Division of Wildlife. Private land owners are also involved.

Federal

U.S. Forest Service

All sheep operations that use BLM administered land during spring and fall also use Ashley National Forest lands during the summer. Four operators and about 16,000 sheep are involved. High mountain Forest Service ranges can only be used during a limited summer grazing season and use of BLM land during spring and fall is an integral part of the operator's year-long operation. Adjustments in season of use and livestock numbers proposed by either agency are interrelated with the seasonal interdependence and year-round ranching operations.

One operator grazes 500 cattle on the Goslin Mountain and Antelope Flat BLM allotments in common with the adjacent Dutch John Draw and Antelope Flat Forest Service allotments. The boundary between Forest Service and BLM administered public land is not fenced. Since these BLM allotments are proposed for improved management, coordination with the Forest Service's Flaming Gorge Ranger District management program would be required. The ranger district would be involved in preparing and concurring with the proposed management plans for these allotments.

National Park Service

The Wild Mountain grazing allotment includes both public lands administered by BLM and Dinosaur National Monument lands. The National Park Service is phasing out grazing in their part of the allotment as soon as possible. By law, two of the three operators must leave the National Monument in 1985. At that time, in order to maintain the existing operation on BLM administered land, a boundary fence would need to be built. It is assumed that the National Park Service will construct and maintain the required fence. Meanwhile, BLM will continue to administer the grazing for both agencies. This Park Service reduction will reduce available AUMs within the allotment and the livestock operators will be expected to make up the loss by grazing on private land.

State

Utah State Lands Division

The State of Utah owns 18,749 acres intermixed with federal and private lands within the planning unit. Most of this land is leased by livestock operators. Proposed changes in grazing management involve 18 BLM allotments containing state land. Exchange of use agreements between the permittees and BLM for all 18 allotments stipulate that unfenced state land will be managed in the same manner as adjacent BLM administered land. Proposed management and developments on public lands may require developments on state lands which

would require approval of the Division of State Lands. Cost of any developments on state lands would be borne by the permittee. Development of AMPs for these allotments would incorporate livestock forage and water developments available on state lands.

Utah Division of Wildlife Resources

The Utah Division of Wildlife Resources (UDWR) is responsible for managing big game herds and other wildlife in the Three Corners Planning Unit. This agency owns or administers 4,800 acres of land in the planning unit. The UDWR coordinates, with the adjacent states (Wyoming and Colorado) through a tri-state coordinating committee, the management of interstate elk herds which use the planning unit.

The UDWR has purchased approximately 1,120 acres of land in the Rye Grass Allotment. The original livestock grazing privileges in the allotment have been retired by BLM and all grazing use in this 4,500 acre allotment is allocated to big game animals. Livestock grazing privileges were also retired on the Red Creek Flat, Taylor Flat, and Watson allotments. Temporary non-renewable permits are issued, however, for spring grazing on these allotments to control grass and stimulate browse production.

The proposed action would increase the competitive forage allocation for wildlife from 2,562 AUMs to 8,324 AUMs. This increase relates to UDWR's plans for increasing big game herds in the planning unit. The proposed standard design, construction, and operation features for fences, water developments, and sagebrush control would be coordinated with UDWR to reduce adverse impacts to wildlife and enhance wildlife habitat. Implementation of these features relates with UDWR's goal to perpetuate and enhance big game and sage grouse populations in the planning unit.

Wyoming Game and Fish Department and Colorado Division of Wildlife

Increases of big game numbers resulting from implementation of the proposed action would ultimately be controlled by the states of Utah, Wyoming, and Colorado. Management and harvest of interstate elk herds is coordinated through a tri-state committee. If the proposed monitoring of forage condition indicates the need for reduction of big game numbers in order to avoid resource damage, BLM would coordinate the reduction with the tri-state committee, or appropriate agency.

Private

Private Land

Thirty-seven of the 39 proposed grazing allotments in the planning unit include unfenced, intermixed private land. In most allotments, livestock grazing on federal lands depend upon water on private lands. The proposed water developments on public lands administered by BLM are intended to alleviate some dependence on privately controlled water, and allow better distribution of grazing. Nevertheless, grazing management would still be heavily dependent upon privately controlled water and the proposed management includes distribution based on available and developed water supplies.

Thirty-four of the grazing allotments are managed with agreement of the private land owners on a "Percent Federal Range Basis" (see Glossary). These allotments usually contain productive private valley bottom lands which con-

DESCRIPTION OF THE PROPOSAL

tribute highly to the grazing capacity of the allotment. Under this type of agreement, fencing of the property boundary lines is not required.

CHAPTER 2

DESCRIPTION OF THE ENVIRONMENT

CHAPTER 2 DESCRIPTION OF THE ENVIRONMENT

A. INTRODUCTION

This chapter describes the Three Corners Planning Unit's environment. The environmental components discussed are: climate, air quality, topography, geologic setting, soils, water resources, vegetation and forage, animal life, cultural resources, paleontological resources, visual resources, land use (including recreation, livestock grazing, transportation network, and special designation), land use plans and constraints, and socioeconomic conditions. While the chapter focuses upon the planning unit, in some instances it may also describe a broader, regional environment.

B. EXISTING ENVIRONMENT

1. Climate

The planning unit's climate is semi-arid in lower elevations (5,000 to 7,000 feet) and humid in higher elevations (above 7,000 feet) as shown on Figure 2-1. Precipitation is generally uniform over the area and July is the driest month. At Flaming Gorge Dam, near the planning unit and intermediate in elevation, the lowest mean annual precipitation over the past 10 years was 9.86 inches and the highest was 17.47 inches (Utah State, 1977). Climate is summarized on Table 2-1.

2. Air Quality

There are no air quality monitoring stations in the planning unit. A site at Vernal, however, has monitored sulfur dioxide, nitrogen dioxide, and particulate matter since September 14, 1977. State and Federal air quality standards have not been exceeded at Vernal, except for one 24-hour violation of particulate standards during a period of strong winds. According to the Utah Bureau of Air Quality, it appears that planning unit pollutant levels are within state and federal air quality standards (UBAQ, 1978).

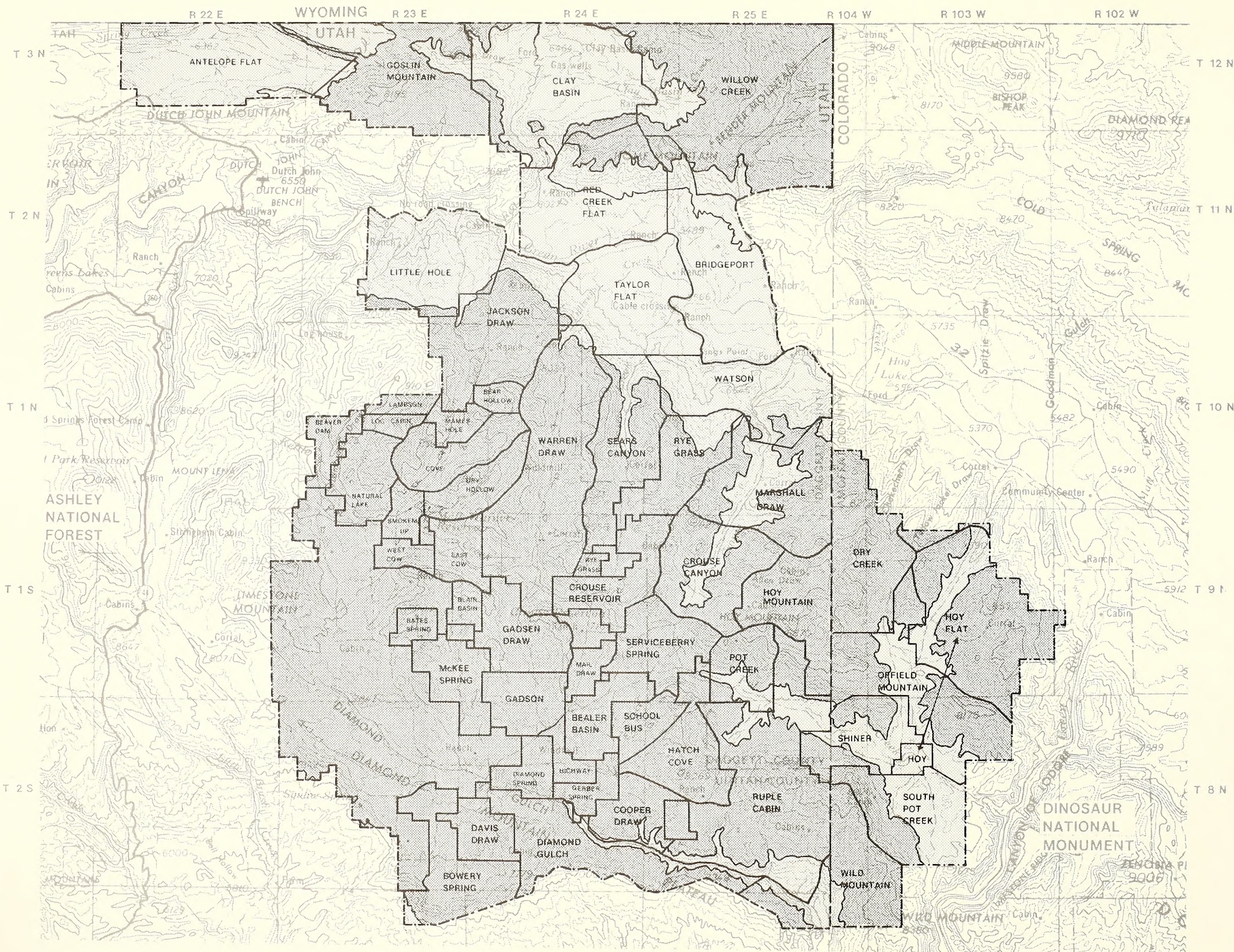
3. Topography

The Three Corners Planning Unit is divided into four major physiographic subdivisions--eastern Uinta Mountains, Browns Park, Dutch John-Cold Spring Highland, and Diamond Mountain Plateau (Hansen, W. R., 1969). Figure 2-2 shows major terrain features and physiographic subdivisions.

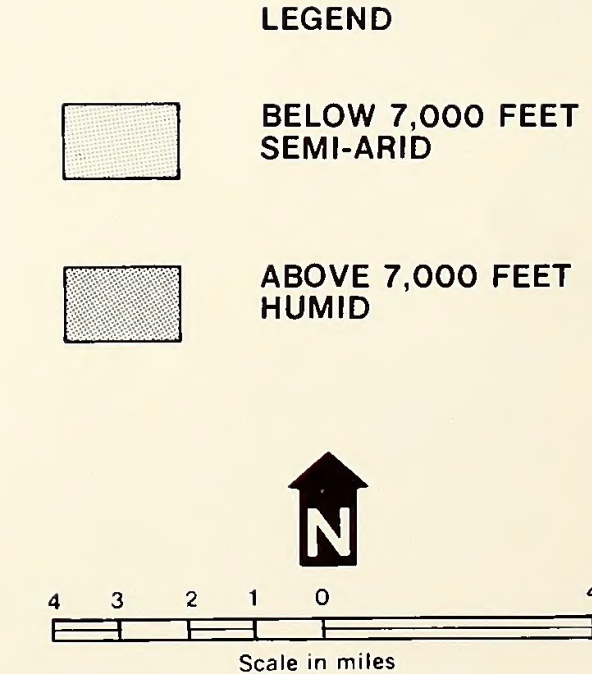
The eastern Uinta Mountains are broken, rocky, mountainous terrain leading to the steep-walled canyons of the Green River. Elevations rise to 9,271 feet above sea level in the planning unit. The highest point on the planning unit, Limestone Peak (elevation 9,271 feet) is on the west boundary.

Browns Park is an intermountain valley, bounded on both sides by steep mountain fronts which rise 3,000 feet above the valley floor. It averages 4 miles in width and greater than 20 miles in length and is traversed by the Green River. Elevations in the valley range from 5,500 to 6,200 feet.

The Dutch John-Cold Spring Highland is a belt of bare-topped hills, hogbacks, and mesas; elevations range from 6,300 to 8,900 feet. Large flat-topped mesas such as Goslin Mountain are remnants of a broad erosional plain that once extended along the flank of the mountains. Also included in this area is Clay Basin.



SOURCE: THREE CORNERS PLANNING DOCUMENTS



CLIMATE ON PLANNING UNIT

FIGURE 2-1

TABLE 2-1

Summary of Climate

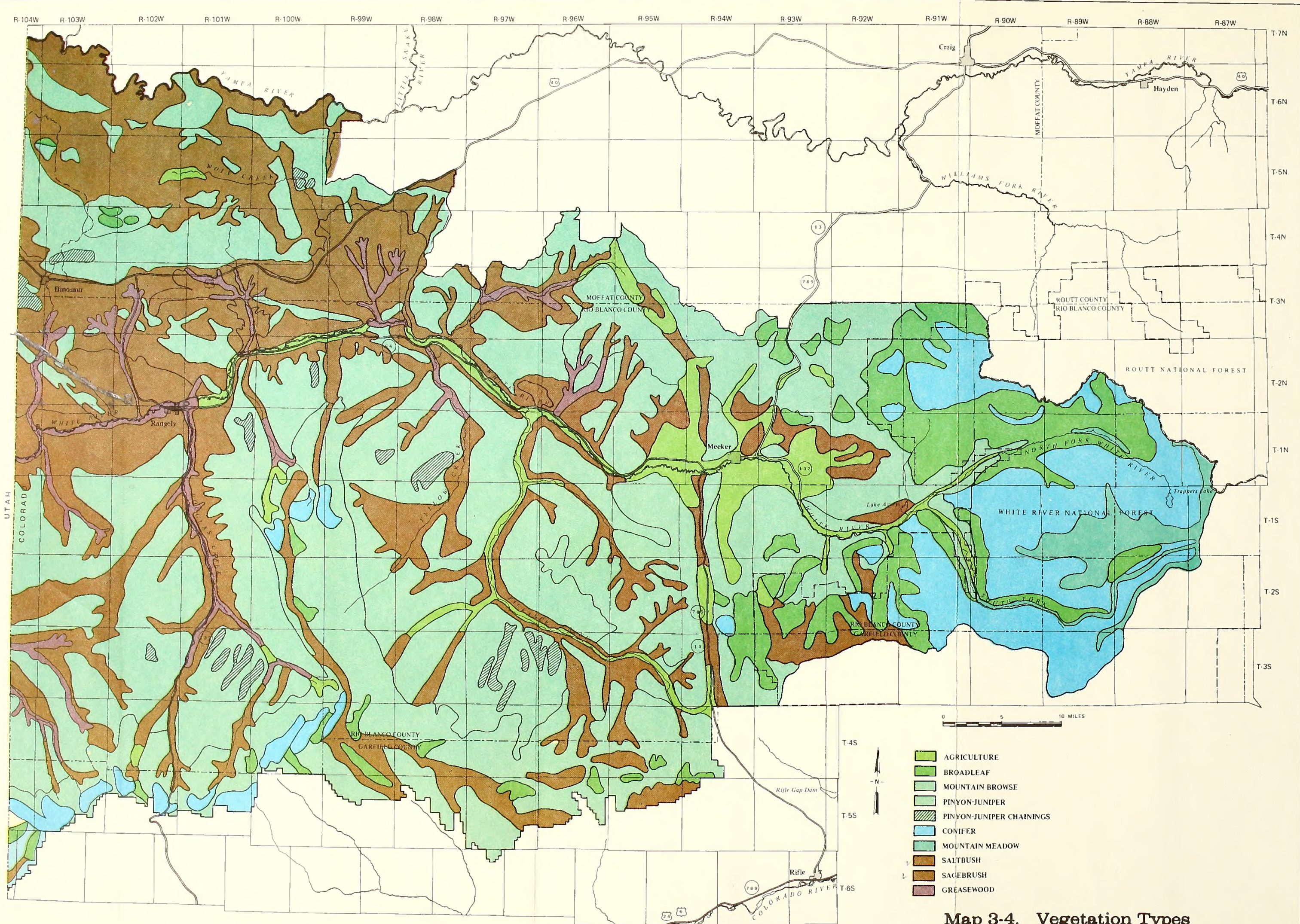
Climatic Factor	Semiarid (5,000 to 7,000 feet)	Humid (Above 7,000 feet)
Average monthly temperature		
Summer	60° F. to 70° F.	55° F. to 65° F.
Winter	20° F. to 25° F.	15° F. to 20° F.
Growing Season	60 to 120 days (April-Sept.)	60 to 100 days (May-Sept.)
Precipitation	8 to 14 inches of water per year as rain and snow.	14 to over 20 inches of water per year as rain and snow.

Percent of Total Annual Precipitation

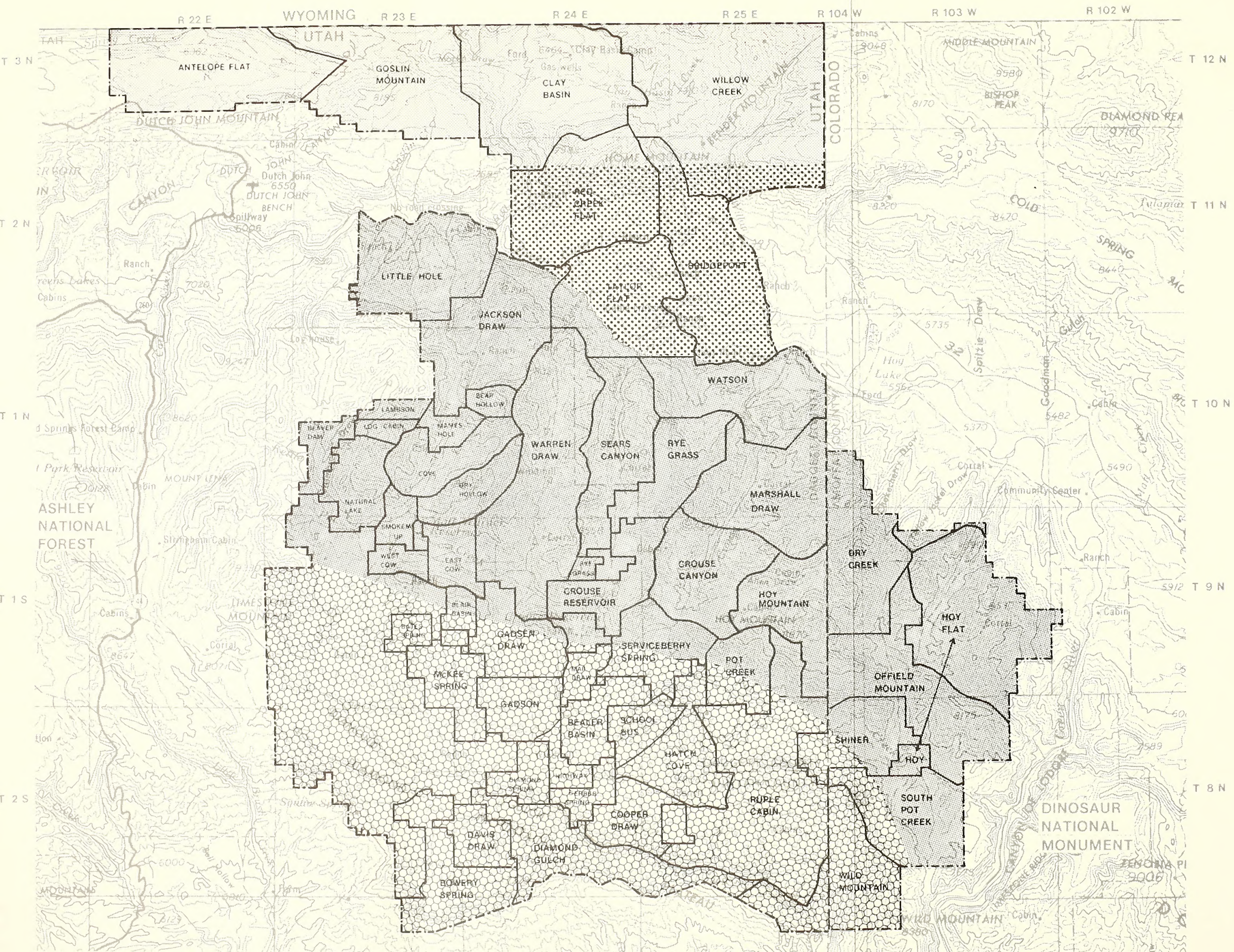
Summer: Intense thunderstorms (22 percent^a)
 Fall: Snow and Rains (21 percent)
 Winter: Snow (14 percent)
 Spring: Rain (43 percent)

Source: Taken from U.S. Fish and Wildlife Service, 1977 and State of Utah, 1977.

^aPercent of total annual precipitation.



Map 3-4. Vegetation Types



SOURCE: THREE CORNERS PLANNING DOCUMENTS

MAJOR TERRAIN FEATURES
AND PHISOGRAPHIC SUBDIVISIONS

FIGURE 2-2

The Diamond Mountain Plateau slopes gradually eastward. The western portion of the plateau is relatively flat to rolling. Elevations vary from about 8,500 feet in the northwest portion to 6,800 feet in the southeast portion. There are several mountainous, rough, steep ridges which rise above the plateau. Some, on the northern portion of the unit, are 9,000 feet above sea level. The lowest point, is in Jones Hole (elevation 5,600 feet) on the extreme southeast of the planning unit.

4. Geologic Setting

The Three Corners Planning Unit is near the eastern and northeastern end of the Uinta Mountains. The Uinta Fault trends east-west through the unit along a line roughly coinciding with the southern edges of Clay Basin and Dutch John Mountain and the northern edges of Goslin and Home Mountains. North of the fault line, to the Wyoming border, the exposed sediments include the Wasatch, Fort Union, Hilliard, and Rock Springs formations along with relatively recently deposited gravels and alluviums. The Hilliard Formation is a grey marine shale that is erodable and generally makes up the floor of valleys in the Antelope Flat and Clay Basin areas. That formation overlays the natural gas field in Clay Basin. The Wasatch Formation which consists of erodable claystones and conglomerates, occupies the Three Corners area in the northeast corner of the Willow Creek Allotment. The Fort Union and Rock Springs formations are generally silt and sandstone which are exposed on slopes surrounding the Hilliard Shale Formation.

South of the Uinta Fault, to the rim of Diamond Mountain Plateau, is the Browns Park Formation consisting of erodable sandstones, conglomerates and volcanic tuffs. It is found in valley bottoms and rolling hills. The Mutual and Red Creek formations are made up of schists and quartzites which are resistant to erosion. They make up the steep slopes and mountains in the area. Erosion resistant limestones of Mississippian age (200-350 million years old) cap the higher peaks (Stokes and Madsen, 1961).

5. Soils

Soils at lower elevations on the planning unit are generally shallow and reflect the parent material from which they were formed. At higher elevations, where precipitation is greater, soils contain more organic matter and are more productive.

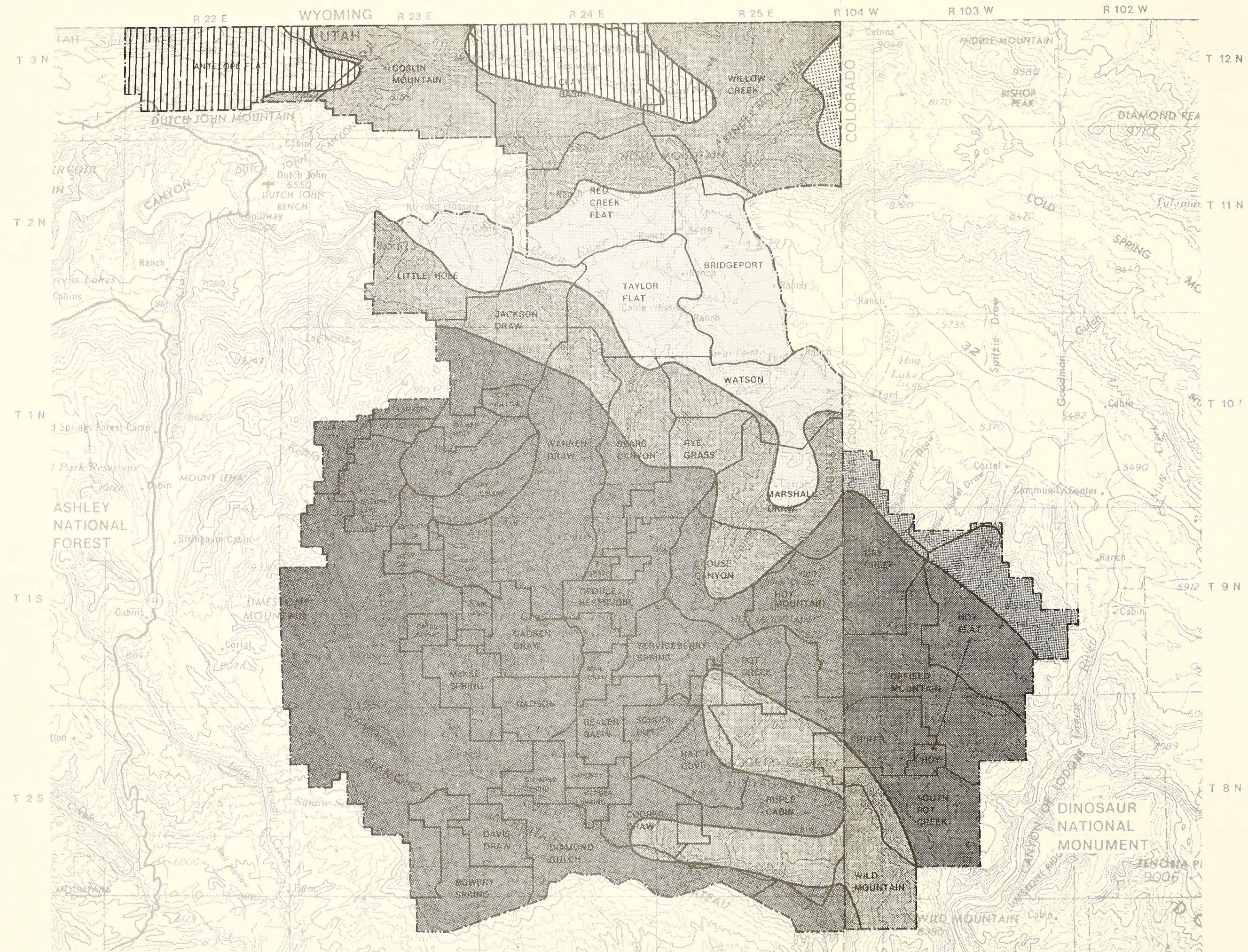
On steep slopes, soils are generally shallow and coarse textured; those along drainage courses are deep and fine textured.

a. Soil Associations

General soil associations on the planning unit were identified in 1975 by the Soil Conservation Service and Utah State University (Wilson, 1975). Their locations are shown in Figure 2-3. Table 2-2 contains descriptions of the six associations.

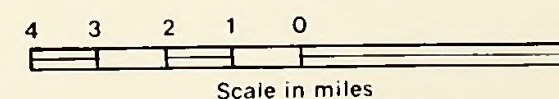
b. Sediment Yield

Annual erosion rates on the planning unit vary between 0.1 to 0.2 acre-feet per square mile (on Diamond, Home, Goslin, and Tepee Mountains) and 0.5 to 1.0 acre-feet per square mile (on Antelope Flat). Average annual sediment yield on public lands in the planning unit is near 0.2 acre-feet per square



LEGEND

- 1- ARGIC CRYBOROLLS, PACIFIC CRYBOROLLS, CRYIC PALEBOROLLS
- 5- TYPIC ARGIBOROLLS, LITHIC ARGIBOROLLS, TYPIC HAPLOBOROLLS
- 9- LITHIC ARGIBOROLLS, ROCK OUTCROP, TYPIC ARGIBOROLLS
- 35- USTIC TORRIFLUENTS, BOROLIC CALCIORTHIDS
- 55- TYPIC CALCIORTHIDS, TYPIC TORRIORTHENTS



SOIL ASSOCIATIONS

SOURCE: THREE CORNERS PLANNING DOCUMENTS

FIGURE 2-3

TABLE 2-2
Soil Association Descriptions

Descriptive Category	Soil Associations					
	Argic Cryoborolls, Pachic Cryoborolls, Cryic Paleborolls	High Mountains	Typic Cryorthents, Typic Cryochrepts, Mollic Cryoborolls	Typic Argiborolls, Lithic Argiborolls, Typic Haploborolls	Lithic Argiborolls, Rock Outcrop, Typic Argiborolls	Ustic Torrifluvents, Borollic Calciorolls
Land Forms	High Mountains	High Mountains	High Mountains	Mountains and Plateaus	Mountains and Plateaus	Valleys
Elevations (ft.)	8,000-12,000	8,000-12,000	8,000-12,000	6,000-8,400	6,000-8,400	6,000-7,000
Average Annual Precipitation (in.)	18-40	18-40	18-40	14-22	14-22	8-14
Mean Annual Soil Temperature	Less than 47° F	Less than 47° F	Less than 47° F	Less than 47° F	Less than 47° F	Less than 47° F
Freeze Free Growing Season (Days)	0-60	0-60	0-60	60-100	60-100	110-180
Sediment Production	Moderately low	Low	Low	Low	Moderate	Low to Moderate
Soil Depth	Moderately Deep to Deep	Moderately Deep to Deep	Moderately Deep to Deep	Shallow to Deep	Shallow to Deep	Deep
pH	Very Acid to Mildly Alkaline	Medium to Extremely Acid	Neutral to Moderately Alkaline	Neutral to Moderately Alkaline	Neutral to Moderately Alkaline	Mildly to Strongly Alkaline
Bed Rock	Below 30 in.	Below 30 in.	Below 30 in.	Less than 20 in.	No Data	No Data
Texture Surface Layers	Silt Loam to Clay Loam	Loamy Sand to Silt Loam	Loamy Sand to Silt Loam	Cobbly Loam to Silty Clay Loam	Gravelly and Cobbly Loam	Loam to Gravelly Sandy Loam
Permeability	Slow to Rapid	Very Slow to Very Rapid	Very Slow to Very Rapid	Slow to Moderate	Moderate to Slow	Moderate to Moderately rapid
Runoff	Medium to Slow	Slow to Medium	Slow to Medium	Medium to Rapid	Medium	Medium to Slow
Present Use	Forest, Range, Wildlife, Recreation, Watershed	Forest, Range, Wildlife, Recreation, Watershed	Forest, Range, Wildlife, Recreation, Watershed	Range, Forest, Wildlife, Recreation, Watershed	Recreation, Wildlife Watershed	Irrigated Cropland and Range
						Range, Wildlife Irrigated Cropland

Note: Soil productivity data is not available.

mile (BR, 1975). Two of the higher yielding areas (0.5 to 1.0 acre-feet per square mile) occur on Mancos Shale and related soils in Clay Basin and on Antelope Flat (Ritzma, 1969). No areas with a yield greater than 1.0 acre-foot per square mile are found in the planning unit. A total of 60 acre-feet of soil is lost each year from public land in the planning unit.

The primary sediment producing stream in the planning unit is Red Creek. Each year, this stream carries an average of 107,000 tons of sediment which includes 86,123 tons of suspended particulates and 20,877 tons of bed load through Clay Basin and into the Green River. This situation is caused by naturally erodable soils in the watershed and the majority of the sediment (90 percent) originates in Wyoming (USGS, 1971-1976). The Utah portion of the watershed has been improving since 1955 as shown by the photographs taken in 1955 and 1978 on Figure 2-4.

Figure 2-5 depicts the planning unit's sediment yielding areas by classes (BR, 1975).

c. Erosion Condition

Present erosion conditions within the area, shown on Table 2-3, have been developed for each allotment based on soil surface factors calculated by Bureau personnel. (Soil surface factors [SSF] are an expression of current erosion activity based on field observations. Surface litter, surface rock, pedestalling, rills, flow patterns, and gullies are examined and each is assigned a number based on relative abundance and importance [see Appendix II-2].)

Only 5,930 acres on four allotments were classified as being in critical condition and no areas were found that have a severe erosion condition. The areas of critical erosion found on Taylor Flat-Watson, Hoy Mountain, and Sears Canyon-Marshall Draw allotments are located on slopes unuseable for livestock grazing. The area of critical erosion on Offield Allotment is on the south slope of Offield Mountain Allotment and is accessible to livestock.

d. Soil Salinity

Soils within the planning unit vary from non-saline to slightly saline (BR, 1975; Bentley, 1978). Figure 2-6 shows salinity by class. The only areas with slightly saline soils are found on Mancos Shale outcrops on Antelope Flat and in Clay Basin (Ritzma, 1969). These slightly saline soils are found on 15,520 acres--which represents less than 0.5 percent of the saline lands on public lands in the State of Utah and less than 0.3 percent of all saline lands in the state.

e. Seeding Suitability

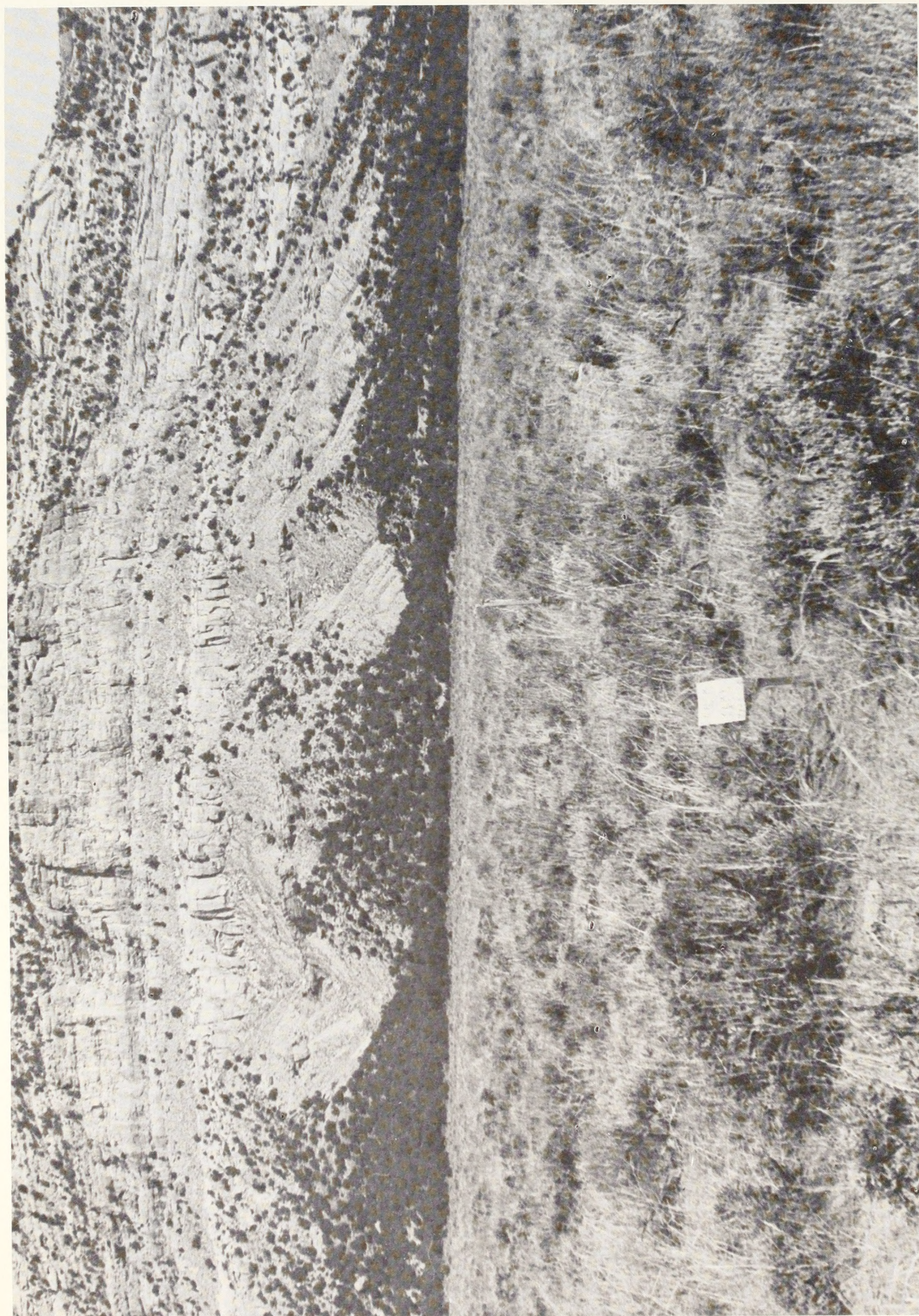
Interpretations were made for seeding suitability using information contained in the resource inventories (URA). Figure 2-7 shows areas where seeding would probably be successful if undertaken. Methodology used to establish seeding suitability is shown in Appendix II-1.

6. Water Resources

Figure 2-8 shows the planning unit's streams and reservoirs. Table 2-4 summarizes the unit's water resources and water quality.



RED CREEK WATERSHED
(Clay Basin No. 7)
IN 1955



RED CREEK WATERSHED
(Clay Basin No. 7)
IN 1978

FIGURE 2-4 (2 OF 8)



RED CREEK WATERSHED
(Clay Basin No. 8)
IN 1955

FIGURE 2-4 (3 OF 8)



RED CREEK WATERSHED
(Clay Basin No. 8)
IN 1978



RED CREEK WATERSHED
(Clay Basin No. 9)
IN 1978

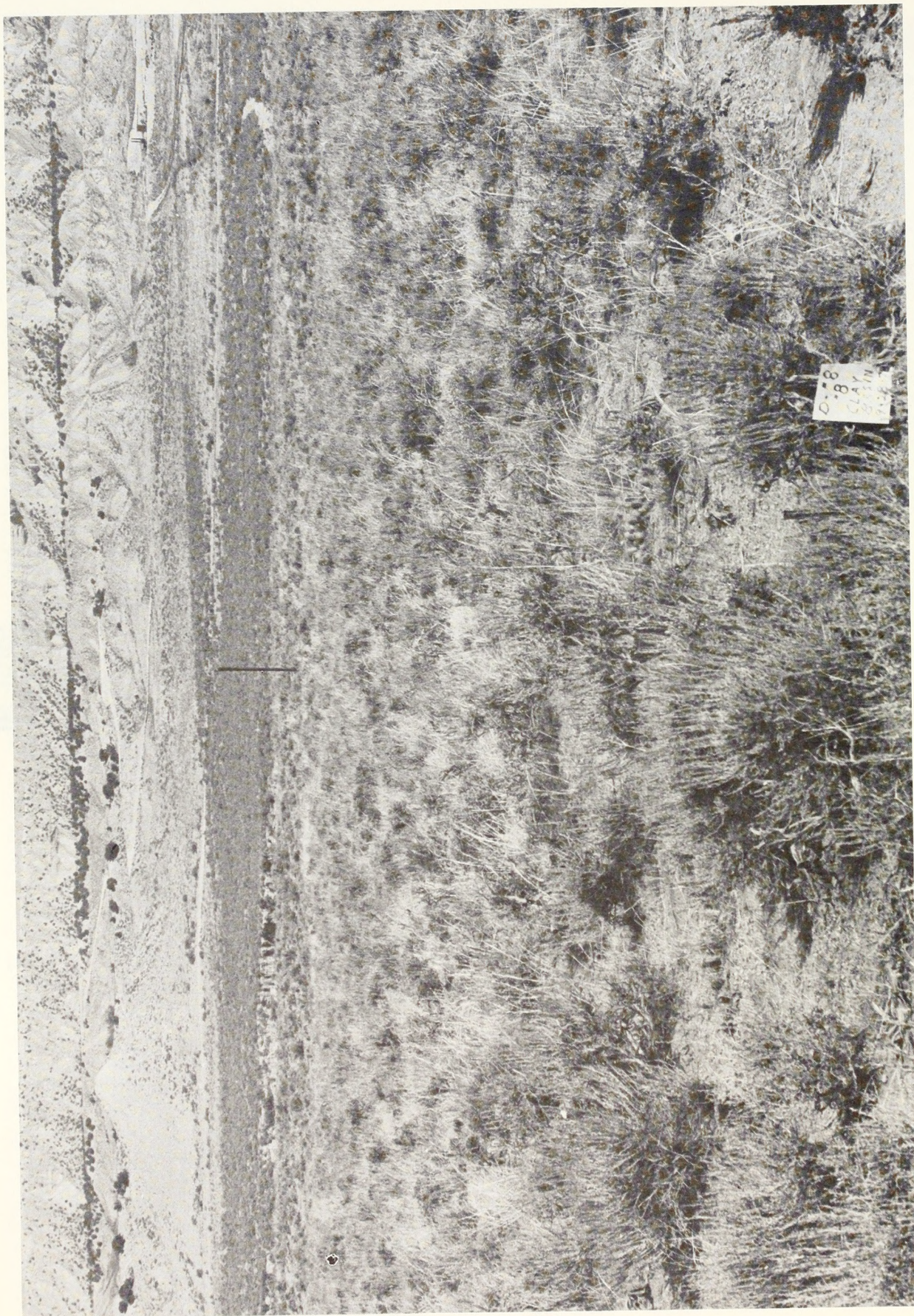


**RED CREEK WATERSHED
(Clay Basin No. 9)
IN 1955**

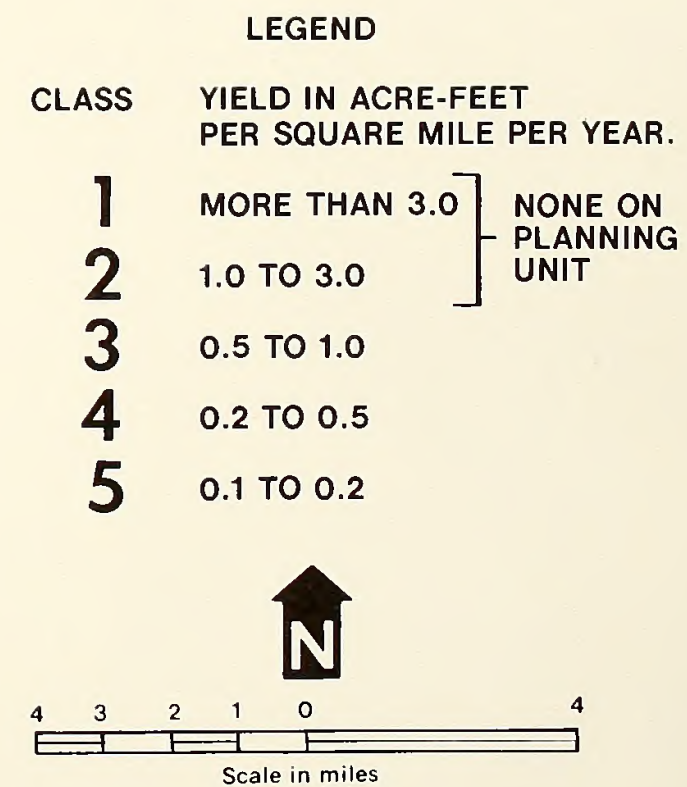
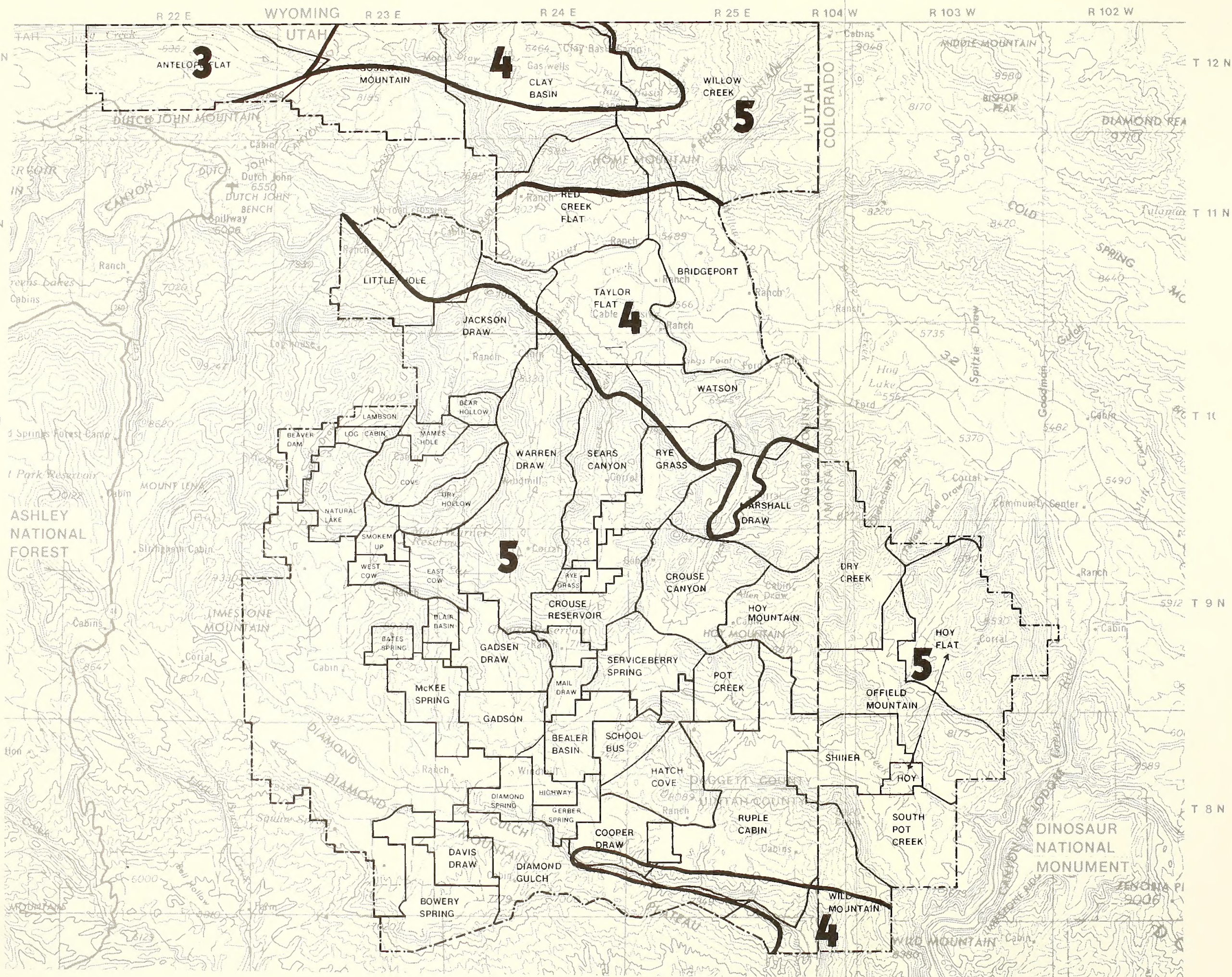
FIGURE 2-4 (6 OF 8)



RED CREEK WATERSHED
(Clay Basin No. 8a)
IN 1955



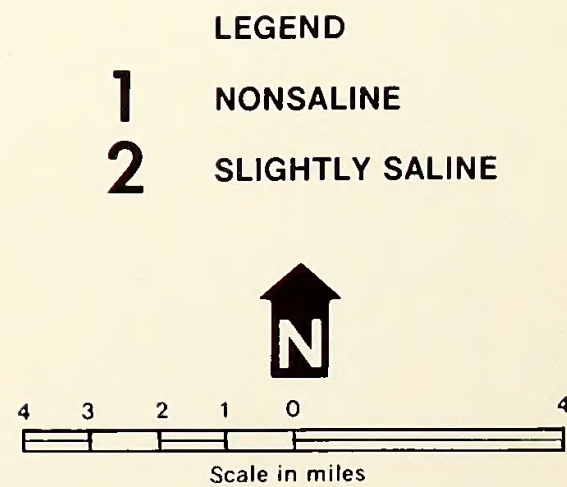
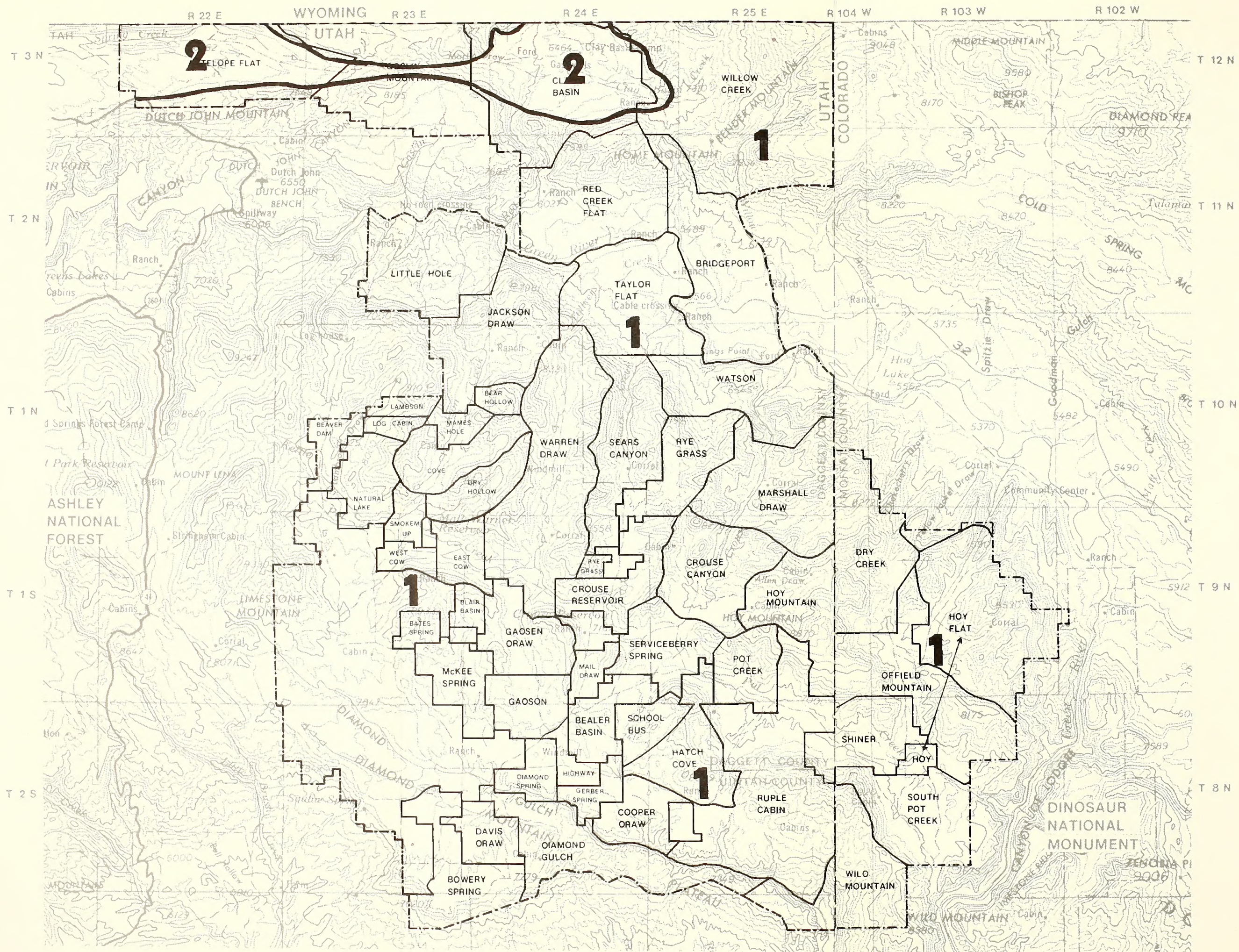
RED CREEK WATERSHED
(Clay Basin No. 8a)
IN 1978



SOURCE: THREE CORNERS PLANNING DOCUMENTS

SEDIMENT YIELD

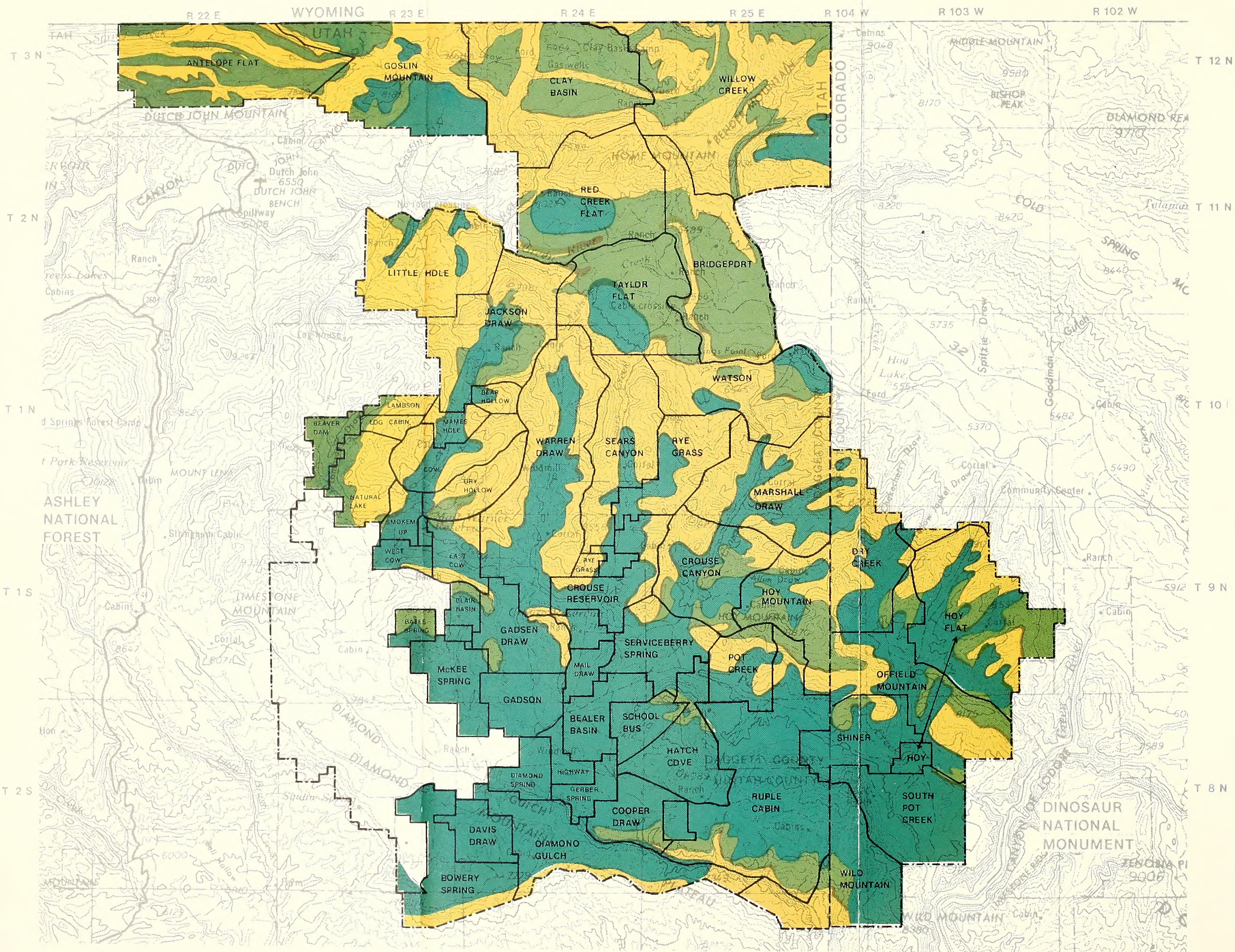
FIGURE 2-5



SOURCE: THREE CORNERS PLANNING DOCUMENTS

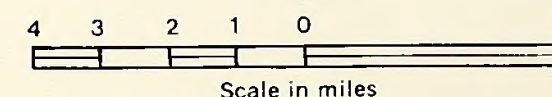
SOIL SALINITY CLASS

FIGURE 2-6



LEGEND

- SOILS WITH SLIGHT LIMITATION FOR VEGETATION MANIPULATION
- SOILS WITH MODERATE LIMITATIONS FOR VEGETATION MANIPULATION
- SOILS WITH SEVERE LIMITATIONS FOR VEGETATION MANIPULATION



SOIL LIMITATION CLASSES FOR VEGETATION MANIPULATION

SOURCE: THREE CORNERS PLANNING DOCUMENTS

FIGURE 2-7

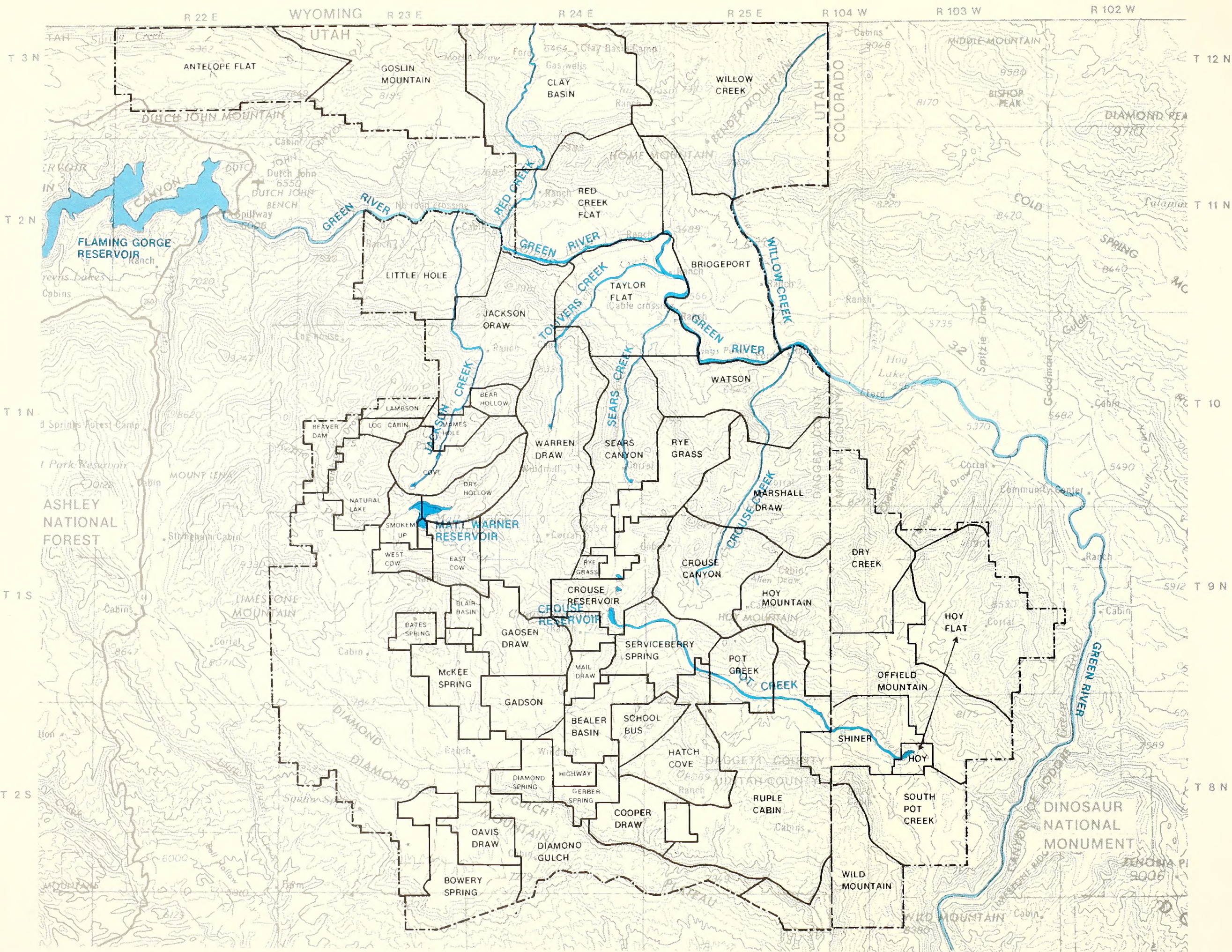
TABLE 2-3
Erosion Condition on Public Land

Proposed Action Sub-component and Allotment	Stable	Slight	Moderate	Critical	Severe	Total
<u>CONTINUATION OF EXISTING MANAGEMENT</u>						
<u>No Livestock Grazing</u>						
Rye Grass	2,040	160	660			2,860
<u>Continue Allotment-Wide Grazing</u>						
<u>Spring (April and May only)</u>						
Bridgeport		1,820	6,478			8,298
Taylor Flat-Watson	510	7,917	3,480	390		12,297
<u>Spring and Fall (Begin in May)</u>						
Bowery Spring		880	360			1,240
Gadson Draw-Gerber Spring	470	1,080	160			1,710
Highway	360	80				440
McKee Spring		880				880
Natural Lake	515	610				1,125
Smokem-up		80				80
<u>Spring-Summer-Fall (Begin in May or June)</u>						
Bates Spring		320				320
Beaver Dam	180	100				280
Blair Basin	360					360
East Cow	530	60				590
Log Cabin	500					500
Mail Draw	530	260				790
Mame's Hole-Bear Hollow	1,380					1,380
<u>Spring-Summer (Begin in June)</u>						
Cove	1,830	220				2,050
West Cow	230					230
<u>Continue Existing Improved Management</u>						
<u>Rest Rotation</u>						
Hoy Mountain (Spring, Summer, Fall Grazing)	1,960	1,590				3,550
Red Creek (Spring Grazing)		4,660	3,798			8,458

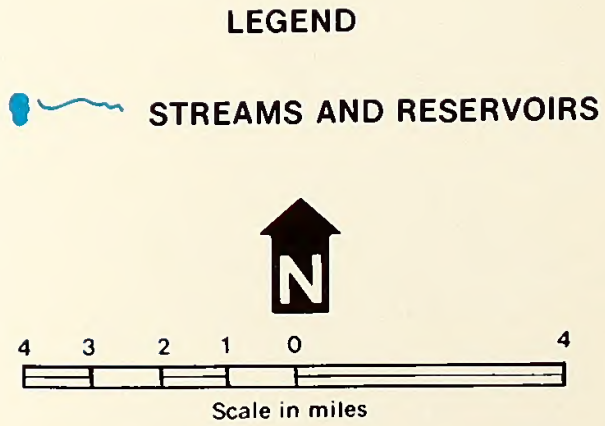
DESCRIPTION OF THE ENVIRONMENT

TABLE 2-3 (continued)

Proposed Action Sub-component and Allotment	Stable	Slight	Moderate	Critical	Severe	Total
<u>CONTINUATION OF EXISTING MANAGEMENT</u> (continued)						
<u>Deferred Rotation</u>						
Dry Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)		14,720	710			15,430
<u>Deferred Rotation and Rest Rotation</u>						
Ruple Cabin (Spring, Summer Grazing)		5,440	6,660			12,100
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>						
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>						
Clay Basin-Antelope Flat-Goslin Mountain		8,217	20,085			28,302
Gadson	510	480				990
Hatch Cove		240	2,730			2,970
Hoy Flat		4,230	5,300	560		10,090
Jackson Draw-Crouse Canyon- Dry Hollow	2,280	5,402	1,130			8,812
Little Hole	1,410		5,774			7,184
Offield Mountain		3,570		3,360		6,930
Pot Creek		1,660				1,660
School Bus		230	1,250			1,480
Sear Canyon-Marshall Draw	5,740	330	2,710	1,620		10,400
Serviceberry Spring	550	1,380				1,930
Shiner		1,500	280			1,780
Warren Draw	2,390	4,710	170			7,270
Willow Creek	1,480	3,270	9,240			13,990
<u>Spring and Fall, With Periodic Spring Deferment</u>						
Bealer Basin-Diamond Gulch- Diamond Spring	1,260	3,770	620			5,650
Cooper Draw		283	2,197			2,480
Davis Draw-Crouse Reservoir-Lambson	480	3,170				3,650
TOTAL	27,495	83,319	73,792	5,930		190,536



SOURCE: THREE CORNERS PLANNING DOCUMENTS



**MAJOR STREAMS
AND RESERVOIRS**

FIGURE 2-8

TABLE 2-4

Streambank and Shoreline in the Planning Unit^a
and Present Water Quality

Proposed Action Sub-component and Allotment	Stream or Reservoir	Public Lands (Miles)		Private Land (Miles)	State Land (Miles)	Present Water Quality ^b
		Total	Accessible to Livestock			
<u>CONTINUATION OF EXISTING MANAGEMENT</u>						
<u>Continue Allotment-Wide Grazing</u>						
<u>Spring (April and May only)</u>						
Bridgeport	Green River	6.5	3.8	3.1	0.5	A
	Willow Creek	1.2	1.2	0.8	0	A
Taylor Flat- Watson	Sears Creek	3.2	3.0	0	0.6	B
	Tolivers Creek	5.4	5.4	1.6	0.8	B
	Green River	10.6	0	8.5	0	A
	Crouse Creek	4.2	0	1.6	2.0	B
<u>Continue Existing Improved Management</u>						
<u>Rest Rotation</u>						
Red Creek Flat	Green River	4.3	0	0.2	1.0	A
	Red Creek ^C	2.4	1.6	1.0	0	B; high sediment load
<u>Deferred Rotation</u>						
Ruple Cabin	Pot Creek ^C	0.6	0.6	4.6	0	C
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>						
<u>Spring, Summer, and Fall, with Regular Spring Deferment</u>						
Clay Basin	Clay Basin Creek ^C	5.6	5.6	2.0	0	C
	Red Creek ^C	5.6	0.6	6.4	0.4	B; high sediment load
Jackson Draw- Crouse Canyon- Dry Hollow	Green River	2.3	0	0	0	A
	Jackson Creek	0.4	0	3.8	0	A
	Crouse Creek	0	0	4.8	0	B
Little Hole	Davenport Creek ^d	4.0	4.0	3.8	0	B
	Gorge Creek	2.4	0	0	1.2	A
	Green River	4.0	0.4	0	4.6	A
	Jackson Creek	5.0	1.4	1.0	0	B
Offield Mountain	Pot Creek ^C	2.4	2.4	0.4	0	C
Sears Canyon- Marshall Draw	Sears Creek	6.2	1.2	2.0	0	A
	Crouse Creek	0.4	0.4	5.4	0	B

TABLE 2-4 (concluded)

Proposed Action Sub-component and Allotment	Stream or Reservoir	Public Lands (Miles)		Private Land (Miles)	State Land (Miles)	Present Water Quality ^b
		Total	Accessible to Livestock			
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> <u>(continued)</u>						
Serviceberry Spring	Pot Creek ^C	0.6	0.6	7.2	0	C
Warren Draw	Tolivers Creek	2.2	0	6.0	0	B
Willow Creek	Clay Basin Creek	3.4	3.4	3.8	0	C
	Crumb Creek	0	0	3.8	0	C
	Galloway Creek	0	0	3.2	0	C
	O-Wi-Yu-Kuts Creek	0.6	0.6	3.4	0	B
	Willow Creek	4.4	0	8.0	0	A
<u>Spring and Fall, With</u> <u>Regular Spring Deferment</u>						
Bealer Basin-Diamond Gulch-Diamond Spring	Diamond Gulch Creek ^C	15.4	15.4	2.4	3.8	C
Davis Draw-Crouse Reservoir-Lambson	Calder Pond	0.7	0.7	1.6	0	A
	Crouse Reservoir	0.2	0.2	4.8	0	A
	Pot Creek ^C	0.6	0.6	6.8	10.8	A
Total By Ownership		104.8	53.1	102.0	25.7	
Total streambank and shoreline miles		290.4				

^aMiles of streambank rather than stream miles are given for all allotments to show the relationship of the streams to the individual allotments.

^bA--Consistently meet State of Utah standards for its beneficial use class for fecal coliform and nitrates but not for orthophosphate.

B--Occasionally exceeds State of Utah standards for its beneficial use class for fecal coliform and nutrients.

C--No data available.

^cIntermittent

^dAll but 0.5 miles are intermittent.

The total annual water supply on public lands in the planning unit is approximately 130,460 acre-feet, exclusive of the Green River. Consumptive water uses by livestock and big game amount to 23 acre-feet or about 0.02 percent of the amount available annually. Appendix II-3 shows how consumptive water use and total annual water supply was calculated.

About 36 percent (104.8 miles) of the unit's stream and reservoir shorelines are on public lands. The Green River flows through the unit for 26.7 miles and has a shoreline of 41.1 miles; about 67 percent (27.7 miles) is on public lands. Two privately owned reservoirs have a total shoreline of 4.9 miles, but only 18 percent (0.9 miles) of their shoreline is on public lands. Livestock are excluded from 51.7 miles about 51 percent of public land stream-banks and shoreline by fences, by canyon terrain, or because the areas are not grazed by livestock.

Red Creek carries an average of 86,123 tons of suspended sediment per year into the Green River (USGS, 1971-1976). Approximately 90 percent of the high sediment load originates in Wyoming (USGS, 1971-1976).

Levels of fecal coliform bacteria exceed the State of Utah, Division of Health, standards for water quality on BLM segments of Crouse, Davenport, Jackson, Red, and Sears Creeks. Except for Sears and Jackson Creeks, most contamination results from livestock grazing on privately owned bottom land, upstream from the public lands (BLM, 1977). Fecal contamination in Sears Creek exceeds state standards when livestock are not present and is believed to originate from big game (BLM, 1977). Fifty-three percent of Jackson Creek is on public land and fecal contamination increases as it flows through the public land section. Increases are probably due to livestock grazing along the stream's banks. It is estimated that public land is the source of 17 percent of the fecal contamination in the planning unit's waters (BLM, 1977).

Nutrients (primarily orthophosphate) frequently exceed state standards in streams for which data are available. The source of these nutrients is unknown, but is believed to originate from vegetation decomposition (EPA, 1976).

7. Vegetation and Forage

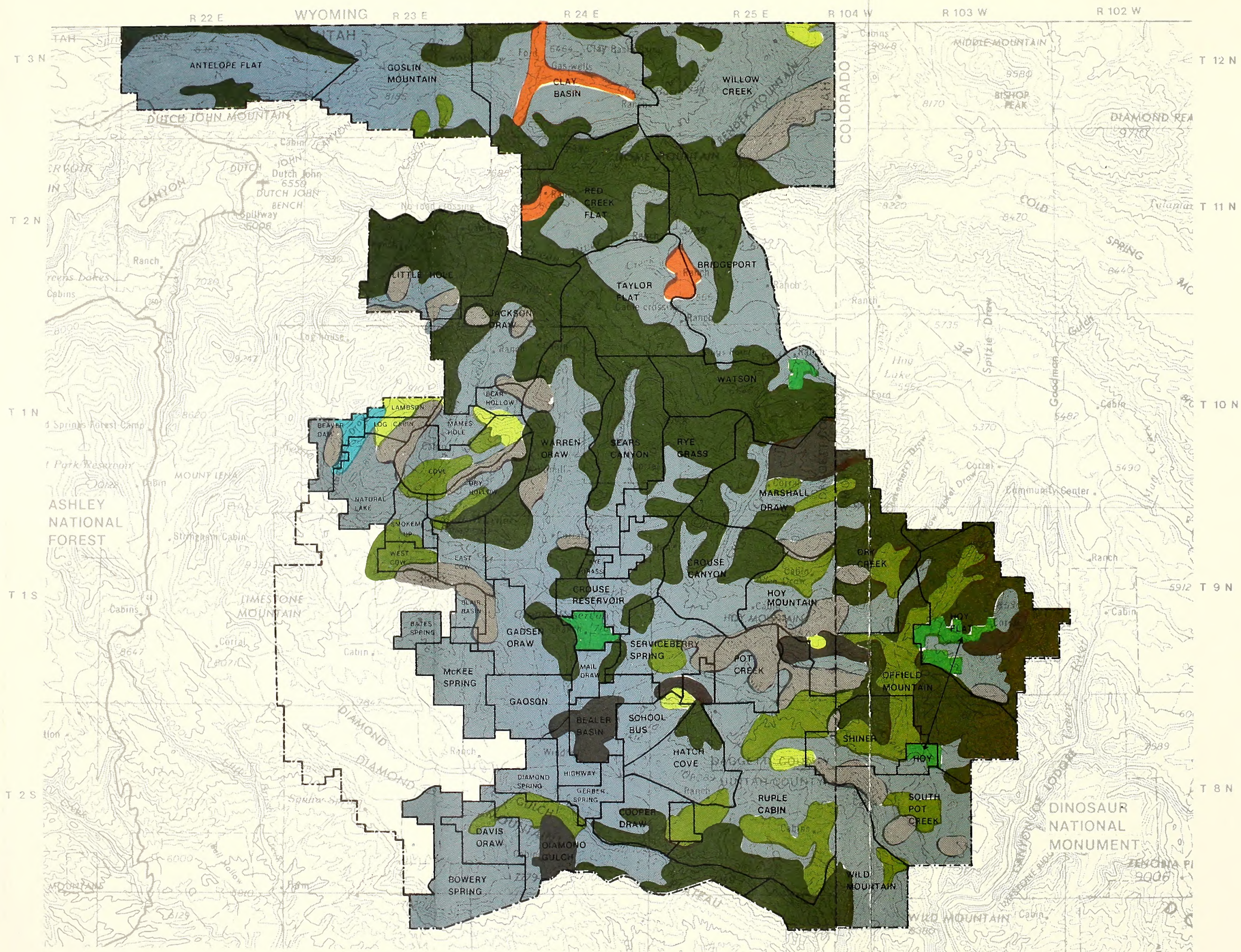
Vegetation Types and Subtypes

The Three Corners Planning Unit has eight major vegetation types. Five of the major types are further divided into 11 subtypes as described on Table 2-5. Table 2-6 lists each type's acreage on the allotments. Figure 2-9 shows the distribution of the types and subtypes.

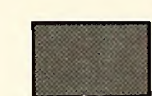
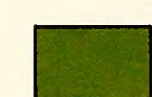
Riparian vegetation is found along 11 of the 15 streams in the planning unit. The unit's four other streams and two reservoirs do not support sufficient riparian plant species to be included in the type. Table 2-7 shows the amount of riparian vegetation on public land in the planning unit, its condition, and accessibility to livestock.

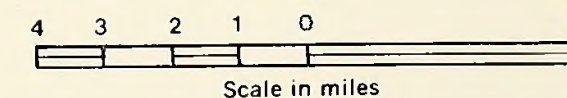
Composition and Ground Cover

Table 2-8 lists the percentage of vegetation ground cover and percentage of desirable plant species in the vegetation composition on each allotment. Desirable species are those that contribute most of the forage for grazing and browsing animals, are perennial, and are the major contributors to stable watershed and soil conditions. (See Appendix I-4 for methodology of determining vegetation composition and ground cover.)



LEGEND

-  SAGEBRUSH
-  PINYON-JUNIPER
-  CONIFER
-  GRASS
-  MTN. SHRUB
-  BROAD LEAF (ASPEN)
-  GREASEWOOD
-  AGRICULTURE
-  WET MEADOW



SOURCE: THREE CORNERS PLANNING DOCUMENTS

**THREE CORNERS PLANNING UNIT
VEGETATION TYPES**

TABLE 2-5

Description of Vegetation Types on the Planning Unit

Vegetation Types and Subtypes	Percent of Planning Unit	General Location and Soils	Associated Species
Sagebrush Big Sagebrush Black Sagebrush Rabbitbrush	42.4	Most common in valley bottoms, plateaus and benches. Soils vary from shallow and rocky on hillsides and ridges to deep and well drained soils on valley bottoms.	Antelope bitterbrush, rabbitbrush, true mountain mahogany, western wheatgrass, bluebunch wheatgrass, Indian ricegrass, blue grasses, needlegrass, phloxes, asters, buckwheats, bluebells, legumes, and pussytoes.
Pinyon-Juniper Pinyon-Juniper Juniper	42.4	Generally located on moderately to steeply sloping uplands with shallow rocky soils.	Utah juniper, Rocky Mountain juniper, pinyon pine, big sagebrush, black sagebrush, mountain mahogany, snowberry, chokecherry, cheatgrass, wheatgrasses, ricegrass, bluegrasses, asters, phlox, lupines, stonecrop, and buckwheat.
Conifer Douglas fir Ponderosa	7.7	Located at higher elevations on shallow to moderately deep soils and occasionally on rocky sites.	Douglas fir subtype--snowberry, chokecherry, mountain mahogany, aspen, wheatgrasses, oniongrass, needlegrass, and a minimal forb cover. Ponderosa pine subtype--juniper, snowberry, big sagebrush, bitterbrush, cheatgrass, wheatgrass, bluegrasses, lupines, asters, and stonecrops.
Grass	2.8	Occurs on gently to moderately sloping uplands with deep soils.	Indian ricegrass, bluegrasses, wheatgrasses, big sagebrush, lupines, phlox, asters, and pussytoes.
Mountain Shrub Mountain Mahogany Bitterbrush	2.8	The mountain mahogany subtype is generally located on moderate to steep slopes with shallow soils. The bitterbrush subtype is found on slight to moderate slopes with moderately deep soils.	Mountain mahogany subtype--curlleaf mountain mahogany, big sagebrush, rabbitbrush, chokecherry, snowberry, oniongrass, needle-and-thread grass, western wheatgrass, milkweed, asters, and lupines. Bitterbrush subtype--antelope bitterbrush, big sagebrush, wheatgrasses, bluegrasses, needle grasses, junegrass, buckwheat, and pussytoes.
Broadleaf Trees (Aspen)	1.0	Located at higher elevations around the fringes of Douglas fir stands, generally in moderately deep soils.	Snowberry, serviceberry, bromes, wheatgrasses, bluegrasses, and several forb species.
Greasewood	0.5	Generally located along drainages with with deep soils in Clay Basin and Brown Park.	Black greasewood, big rabbitbrush, big sagebrush, salt grass, western wheatgrass, seepweed.
Riparian Wet Meadow	0.4	This type is restricted to bottomlands which remain wet through most of the year. Soils are generally heavy and fairly shallow with a hardpan beneath.	Sedges, rushes, western wheatgrass, needlegrasses, bluegrasses, big sagebrush, stonecrop, and iris.
Streambank (Perennial)		Located along the major streams and Green River. Soils vary from shallow rocky to deep alluvial deposits.	Willow, birch, rabbitbrush, sedges, rushes, bluegrasses.

Source: Three Corners Planning Documents.

TABLE 2-6
Distribution of Vegetation Types

Proposed Action Sub-component and Allotment	Public Land Acres in Allotment	Acres of Type in Allotments													
		Sagebrush			Pinyon-Juniper		Conifer			Mountain Shrub		Broadleaf Trees (Aspen)	Grease Wood	Riparian	
		Big Sage	Black Sage	Rabbit brush	P-J	Juniper	Douglas Fir	Ponderosa Pine	Grass	Mountain Mahogany	Bitter brush			Wet Meadow (Perennial)	Streambank
CONTINUATION OF EXISTING MANAGEMENT	27,530	29,031	3,000	164	11,864	15,452	4,386	1,539	3,311	796	104	1,411	491	114	445
No Livestock Grazing	2,860	695			1,805		360								
Rye Grass	2,860	695			1,805		360								
Continue Allotment- Wide Grazing															
Spring (April and May only)	20,595	6,746		164	4,830	8,341				134			32		348
Bridgeport	8,298	3,865		164	585	3,520							32		132
Taylor Flat-Watson	12,297	2,881			4,245	4,821				134					216
Spring and Fall (Begin in May)	5,475	3,375	391			926	439	200			104	40			
Bowery Spring	1,240	1,240													
Gadson Draw- Gerber Spring	1,710	556	28			926		200							
Highway	440	336									104				
McKee Spring	880	517	363												
Natural Lake	1,125	646					439					40			
Smokem-up	80	80													
Spring-Summer-Fall (Begin in May or June)	4,220	2,143			80	184	1,074	270	40			315		114	
Bates Spring	320	320													
Beaver Dam	280	13					153							114	
Blair Basin	360						90	230	40						
East Cow	590	40			80		430	40							
Log Cabin	500						345					155			
Mail Draw	790	606				184									
Mame's Hole-Bear Hollow	1,380	1,164					56					160			
Spring-Summer (Begin in June)	2,280	457					1,202		343			278			
Cove	2,050	457					972		343			278			
West Cow	230						230								

TABLE 2-6 (continued)

Proposed Action Sub-component and Allotment	Public Land Acres in Allotment	Acres of Type in Allotments											Riparian	
		Big Sage	Sagebrush Black Sage	Rabbit brush	Pinyon-Juniper P-J	Juniper	Conifer Douglas Fir	Ponderosa Pine	Grass	Mountain Mahogany	Shrub Bitter brush	Broadleaf Trees (Aspen)	Grease Wood	Wet Meadow
CONTINUATION OF EXISTING MANAGEMENT (continued)														
Continue Existing Improved Management														
Rest Rotation	12,008	2,755	245			6,001	795	122	748	340		446	459	97
Hoy Mountain (Spring, Summer, Fall Grazing)	3,550	1,099					795	122	748	340		446		
Red Creek (Spring Grazing)	8,458	1,656	245			6,001							459	97
Deferred Rotation	15,430	9,170	169		4,499		836	450	306					
Ory Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)	15,430	9,170	169		4,499		836	450	306					
Deferred Rotation and Rest Rotation	12,100	4,385	2,195		2,455		40	497	1,874	322		332		
Ruple Cabin (Spring, Summer Grazing)	12,100	4,385	2,195		2,455		40	497	1,874	322		332		
IMPLEMENT IMPROVED GRAZING MANAGEMENT	115,568	43,314	4,612		34,566	17,108	5,604	2,676	2,013	3,131	1,347	497	508	192
Spring, Summer, and Fall, with Regular Spring Deferment	103,788	37,070	4,362		31,562	16,485	5,156	2,676	1,895	3,131	417	334	508	192
Clay Basin- Antelope Flat- Goslin Mountain	28,302	19,537	1,638			6,544			75				508	
Gadson	990	633	126								231			
Hatch Cove	2,970	1,105	1,321			544								
Hoy Flat	10,090	663			7,614		205		819	789				
Jackson Draw- Crouse Canyon- Ory Hollow	8,812	2,502			3,804	1,987	479							40
Little Hole	7,184	1,106			5,044		198	746						90
Offield Mountain	6,930	396			5,374		17	337	507	299				
Pot Creek	1,660	147					184	1,228		101				
School Bus	1,480	1,079				206				195				
Sears Canyon- Marshall Draw	10,400	2,164			4,870	767	531		299	1,747				22
Serviceberry Spring	1,930	737				570		365			186	72		
Shiner	1,780	252			1,279		54		195					
Warren Draw	7,270	786			3,577	730	2,169							8
Willow Creek	13,990	5,963	1,277			5,137	1,319					262		32

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-6 (concluded)

Proposed Action Sub-component and Allotment	Public Lands Acres in Allotment	Acres of Type in Allotments												
		Sagebrush			Pinyon-Juniper		Conifer			Mountain Shrub		Riparian		
		Big Sage	Black Sage	Rabbit brush	P-J	Juniper	Douglas Fir	Ponderosa Pine	Grass	Mountain Mahogany	Bitter brush	Broadleaf Trees (Aspen)	Grease Wood	Wet Meadow (perennial)
IMPLEMENT IMPROVED GRAZING MANAGEMENT (continued)														
Spring and Fall, With Regular Periodic Spring Deferment	11,780	6,244	250		3,004	623	448		118		930	163		
8ealer Basin-Diamond Gulch-Diamond Spring	5,650	2,460	250		1,490	520					930			
Cooper Draw	2,480	1,562			918									
Davis Draw-Crouse Reservoir-Lambson	3,650	2,222			596	103	448		118			163		
Total Acres Per Subtype	190,536	73,040	7,612	164	48,235	32,560	10,350	4,215	5,324	3,927	1,451	1,908	999	114 637
Total Acres Per Type		80,816			80,795		14,565		5,324	5,378		1,908	999	751

Source: Three Corners Planning Documents.

TABLE 2-7

Amount and Condition of Riparian Vegetation

Proposed Action Sub-component and Allotment	Stream	Miles of Bank ^a		Acres on Public Land		Condition Rating ^b
		Public Land	Accessible to Livestock	Total	Accessible to Livestock	
<u>CONTINUATION OF EXISTING MANAGEMENT</u>						
<u>Continue Allotment-Wide Grazing</u>						
<u>Spring</u>						
Beaver Dam	Pot Creek	0.0	0.0	114	114	Good
Bridgeport	Green River	6.5	3.8	125	92	Good
	Willow Creek	1.2	1.2	7	7	n/a ^c
Taylor Flat-Watson	Sears Creek	3.2	3.0	7	6	n/a
	Toliver Creek	5.4	5.4	20	20	Good
	Green River	10.6	0.0	170	46	Good
	Crouse Creek	4.2	0.0	19	0	Good
Sub Total		31.1	13.4	462	285	--
<u>Continue Existing Improved Management</u>						
Red Creek	Green River	4.3	0.0	97	73	Good
	Red Creek	2.4	1.6	0	0	n/a
Ruple Cabin	Pot Creek	0.6	0.6	0	0	n/a
Sub-Total		7.3	2.2	97	73	--
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>						
Bealer Basin-Diamond Gulch-Diamond Spring	Diamond Gulch Creek	15.4	15.4	0	0	n/a
Clay Basin-Antelope Flat-Goslin Mountain	Clay Basin Creek	5.6	5.6	0	0	n/a
	Red Creek	5.6	0.6	0	0	n/a
Davis Draw-Crouse Reservoir-Lambson	Calder Pond	0.7	0.7	0	0	n/a
	Crouse Reservoir	0.2	0.2	0	0	n/a
	Pot Creek	0.6	0.6	0	0	n/a
Jackson Draw-Crouse Canyon-Dry Hollow	Crouse Creek	0.0	0.0	0	0	n/a
	Green River	2.3	0.0	38	0	Good
	Jackson Creek	0.4	0.0	2	0	Good
Little Hole	Davenport Creek	4.0	4.0	3	3	Fair
	Gorge Creek	2.4	0.0	15	0	Good
	Green River	4.0	0.4	54	10	Good
	Jackson Creek	5.0	1.4	18	5	Fair
Offield Mountain	Pot Creek	2.4	2.4	0	0	n/a

TABLE 2-7 (concluded)

Proposed Action Sub-component and Allotment	Stream	Miles of Bank ^a		Acres on Public Land		Condition Rating ^b
		Public Land	Accessible to Livestock	Total	Accessible to Livestock	
Sears Canyon- Marshall Draw	Crouse Creek	0.4	0.4	2	2	Fair
	Sears Creek	6.2	1.2	20	3	Good
Serviceberry Spring	Pot Creek	0.6	0.6	0	0	n/a
Warren Draw	Toliver Creek	2.2	0.0	8	0	Good
Willow Creek	Clay Basin Creek	3.4	3.4	0	0	n/a
	Crumb Creek	0.0	0.0	0	0	n/a
	Galloway Creek	0.0	0.0	0	0	n/a
	O-Wi-Yu-Kuts Creek	0.6	0.6	2	2	Good
	Willow Creek	4.4	0.0	30	30	Good
Sub Total		66.4	37.5	192	55	--
TOTAL		104.8	53.1	751	413	--

Source: Three Corners Planning Documents.

^aMileage includes both banks.

^bBLM, 1978.

^cn/a = not applicable.

TABLE 2-B

Composition of Desirable Plants and Vegetation Ground Cover

Proposed Action Sub-component and Allotment		Percent Composition											Total Composition of Desirable Plants										Proposed Action Sub-component and Allotment	
		Grasses											Forbs				Shrubs							
	Vegetative Ground Cover (%)	Blue- grass	Elk Sedge	June- grass	Needle- and- Thread Grass	Letterman Needle- grass	Columbia Needle- grass	Indian Rice- grass	Blue- bunch Wheat- grass	Western Wheat- grass	Crested Wheat- grass	Arrow- leaf Balsam root	Daisy	Lupine	Phlox	Bitter- brush	Curlleaf Mountain Mahogany	True Mountain Mahogany	Big Sagebrush ^a	Black Sagebrush	Serviceberry	Snowberry		
CONTINUATION OF EXISTING MANAGEMENT																								
No Livestock Grazing																								
Rye Grass	25	14	--	2	1	--	1	--	--	7	--	--	3	1	7	5	--	1	40	--	6	1	79	Rye Grass
Continue Allotment-Wide Grazing																								
Spring (April and May only)																								
Bridgeport	10	--	--	--	3	--	--	2	1	--	--	--	--	--	--	--	--	--	55	--	--	--	36	Bridgeport
Taylor Flat-Watson	20	--	--	--	17	--	--	7	--	--	41	--	--	--	--	--	--	--	21	--	--	--	86	Taylor Flat-Watson
Spring and Fall (Begin in May)																								
Bowery Spring	25	8	--	1	5	--	--	3	--	13	--	--	--	2	2	10	--	--	55	--	--	--	74	Bowery Spring
Gadson Draw-Gerber Spring	14	5	--	1	2	--	--	2	2	5	--	--	5	--	--	13	15	--	26	--	2	5	83	Gadson Draw-Gerber Spring
Highway	17	4	--	1	--	--	--	--	--	19	2	--	2	2	2	--	--	--	65	--	--	--	62	Highway
McKee Spring	30	3	--	--	--	--	--	--	--	9	--	--	1	1	5	20	--	--	40	3	7	5	84	McKee Spring
Natural Lake	15	17	--	--	2	--	--	1	10	6	--	--	--	6	4	1	--	2	23	--	1	1	74	Natural Lake
Smokem-up	20	2	--	--	--	--	--	--	--	5	--	--	1	10	10	3	--	--	64	--	--	--	61	Smokem-up
Spring-Summer-Fall (Begin in May or June)																								
Bates Spring	20	7	--	1	--	3	--	--	2	2	--	--	3	--	5	3	--	--	50	5	8	7	76	Bates Spring
Beaver Dam	30	9	--	--	8	--	2	--	--	17	--	--	--	--	--	--	--	--	10	--	--	--	46	Beaver Dam
Blair Basin	8	--	--	--	--	--	--	15	--	3	--	--	3	--	5	5	10	1	30	--	2	--	74	Blair Basin
East Cow	15	11	--	--	--	--	--	--	--	10	--	--	--	--	--	--	--	3	--	--	20	17	61	East Cow
Log Cabin	25	9	--	--	--	1	--	--	7	2	--	--	--	--	--	3	--	--	5	--	15	10	52	Log Cabin
Mail Draw	25	9	--	3	2	--	--	--	1	5	--	--	1	--	1	20	--	--	30	--	5	15	92	Mail Draw
Mame's Hole-Bear Hollow	23	6	1	1	2	--	1	--	3	6	--	--	--	1	2	--	--	--	50	--	3	2	58	Mame's Hole-Bear Hollow
Spring-Summer (Begin in June)																								
Cove	15	12	--	1	6	--	--	--	4	10	--	--	5	--	4	5	--	--	11	--	7	7	72	Cove
West Cow	15	11	--	--	--	--	--	--	--	10	--	--	--	--	--	--	--	3	--	--	20	17	61	West Cow
Continue Existing Improved Management																								
Rest Rotation																								
Hoy Mountain (Spring, Summer, Fall Grazing)	18	20	--	2	5	--	--	--	11	8	--	1	--	--	--	4	1	--	2	--	1	2	57	Hoy Mountain (Spring, Summer, Fall Grazing)
Red Creek (Spring Grazing)	20	--	--	--	12	--	--	10	--	--	7	--	--	--	6	--	--	--	31	--	--	--	65	Red Creek (Spring Grazing)
Deferred Rotation																								
Dry Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)	21	6	--	1	1	1	--	--	1	4	--	--	3	1	1	4	--	1	49	5	4	4	67	Dry Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)

TABLE 2-B (concluded)

Proposed Action Sub-component and Allotment	Vegetative Ground Cover (%)	Percent Composition										Forbs				Shrubs						Total Composition of Desirable Plants	Proposed Action Sub-component and Allotment																								
		Grasses																																													
		Blue- grass	Elk Sedge	June- grass	Needle- and- Thread Grass	Letterman Needle- grass	Columbia Needle- grass	Indian Rice- grass	Blue- bunch Wheat- grass	Western Wheat- grass	Crested Wheat- grass	Arrow- leaf Balsam root	Daisy	Lupine	Phlox	Bitter- brush	Curleaf Mountain Mahogany	True Mountain Mahogany	Big Sagebrush ^a	Black Sagebrush	Serviceberry			Snowberry																							
CONTINUATION OF EXISTING MANAGEMENT (continued)																								CONTINUATION OF EXISTING MANAGEMENT (continued)																							
Deferred Rotation and Rest Rotation																								Deferred Rotation and Rest Rotation																							
Ruple Cabin (Spring, Summer Grazing)	17	10	--	3	5	--	--	3	15	14	--	--	3	--	2	7	--	4	19	2	1	2	90	Ruple Cabin (Spring Summer Grazing)																							
IMPLEMENT IMPROVED GRAZING MANAGEMENT																								IMPLEMENT IMPROVED GRAZING MANAGEMENT																							
Spring, Summer, and Fall, with Regular Spring Deferment																								Spring, Summer, and Fall, with Regular Spring Deferment																							
Clay Basin-Antelope Flat-Goslin Mountain	25	9	--	4	8	--	--	1	2	3	1	2	3	1	3	2	--	--	36	14	--	--	83	Clay Basin-Antelope Flat-Goslin Mountain																							
Gadson	20	17	--	4	--	--	--	--	16	--	--	--	2	--	3	--	--	2	7	26	5	2	84	Gadson																							
Hatch Cove	15	13	--	2	--	--	--	5	27	3	--	--	1	--	2	--	--	10	--	25	3	--	91	Hatch Cove																							
Hoy Flat	17	20	--	6	2	--	--	--	1	4	--	--	1	1	3	2	--	--	47	--	2	2	74	Hoy Flat																							
Jackson Draw-Crouse Canyon-Dry Hollow	23	9	1	1	--	1	--	--	--	8	--	--	1	--	2	4	1	1	51	--	3	3	65	Jackson Draw-Crouse Canyon-Dry Hollow																							
Little Hole	30	7	--	2	2	--	--	--	6	3	--	--	--	--	--	18	--	5	32	--	3	1	77	Little Hole																							
Offield Mountain	17	16	1	2	1	--	--	2	4	14	--	--	10	--	8	3	--	--	6	--	--	--	67	Offield Mountain																							
Pot Creek	9	10	--	2	--	--	--	1	6	7	--	1	1	--	--	4	--	1	38	--	2	2	67	Pot Creek																							
School Bus	20	2	--	1	--	--	--	--	--	4	--	--	2	--	2	3	1	--	65	--	6	6	57	School Bus																							
Sears Canyon-Marshall Draw	30	6	--	2	1	--	--	1	1	6	--	--	1	2	1	5	8	5	30	--	6	7	82	Sears Canyon-Marshall Draw																							
Serviceberry Spring	20	1	--	1	1	--	--	1	1	10	--	--	--	--	2	15	--	--	60	--	--	2	64	Serviceberry Spring																							
Shiner	25	3	--	1	--	--	2	1	6	7	--	--	2	2	3	4	--	3	38	3	12	2	81	Shiner																							
Warren Draw	25	3	--	--	1	--	--	--	--	6	--	--	--	4	3	15	--	--	52	--	6	2	70	Warren Draw																							
Willow Creek	27	7	--	2	1	--	--	1	11	1	--	1	6	1	8	--	--	--	17	31	--	1	87	Willow Creek																							
Spring and Fall, With Regular Spring Deferment																								Spring and Fall, With Regular Spring Deferment																							
Bealer Basin-Diamond Gulch-Diamond Spring	30	8	--	--	4	2	--	1	1	7	--	--	--	--	1	25	--	3	32	--	6	--	88	Bealer Basin-Diamond Gulch-Diamond Spring																							
Cooper Draw	20	5	--	4	1	--	--	3	7	--	--	--	9	--	10	5	--	8	12	34	--	--	98	Cooper Draw																							
Davis Draw-Crouse Reservoir-Lambson	42	6	--	--	2	--	--	--	2	5	--	--	2	1	1	18	1	1	27	--	7	3	78	Davis Draw-Crouse Reservoir-Lambson																							

^aOnly up to 30 percent of the composition of big sagebrush is considered desirable. If the composition is made up of more than 30 percent sagebrush, only 30 percent is considered in the total composition column.

Key Species

A key plant species is relatively abundant or potentially abundant in an area, relatively palatable to livestock or wildlife, and serves as an indicator of changes in the vegetation complex. Table 2-9 lists the planning unit's key species and dates of growth stages. (Each allotment's key species are listed in Appendix I-2.)

Threatened and Endangered Plant Species

In 1975, the Fish and Wildlife Service published a list of candidate plant species to be considered for threatened or endangered status (40 F.R. 27824-27924). In 1976, about 1,700 plant species were proposed by the Fish and Wildlife Service for endangered status (41 F.R. 24523-24572). The rule making on this proposal is still in progress.

To date, two Utah plant species have been officially listed; one is listed as threatened, the other as endangered. Neither of these species occur in or near the planning unit.

Table 2-10 lists proposed and candidate threatened or endangered plant species which are known to occur, or are likely to occur, within the planning unit. These species were listed in the 1975 or 1976 Federal Registers. Information for these species is not complete because there has been no intensive floristic inventory of the planning unit.

Forage Production

Total vegetation production on the planning unit is unknown. A forage survey has been conducted, however, and is used as an indicator of forage production. About 38 percent (71,525 acres) of the planning unit was surveyed in 1958 and the remaining 62 percent (119,011 acres) in 1976. Spot checks in 1976 on the area surveyed in 1958 verified the reliability of the older survey. The forage survey was conducted under the "ocular reconnaissance" guidelines (see Appendix I-4).

The survey calculated the total amount of forage available for livestock and was modified to indicate forage for big game (see Appendix I-4). No forage was identified specifically for other uses, including small animals, but vegetation and forage for other uses was included in the calculations of proper forage use.

Based on the surveys, livestock forage production on the planning unit's public lands is estimated to be 25,993 AUMs. In addition to the survey of forage, 8,350 non-competitive AUMs are being used by big game (see Appendix I-3). Because forage conditions are either static or improving on all parts of the planning unit (BLM, 1978), it is assumed that a total of 34,343 AUMs are available. Table 2-11 shows forage production by individual allotment.

Forage Condition

Ecological range condition is determined by the current productivity of a range relative to what that range is naturally capable of producing. Ecological range condition is not known for the planning unit. Forage conditions, however, are known; and therefore this environmental statement deals only with forage condition. Forage condition is the present state of health of a range based on the amount and quality of forage it is capable of producing for grazing animals, including wildlife. It is expressed as good, fair, or poor, based on

TABLE 2-9

Key Species and Dates of Growth Stages

Species	Start Growth	Start Flowering	Peak of Flowering	Seed Ripe	Seed Dissemination	Regrowth
Big Sagebrush	Above 7,000' 3/30	7/20	9/1	10/1	10/15	Continuous
Black Sagebrush	Above 7,000' 3/30	7/20	9/1	10/1	10/15	Continuous
True Mountain-Mahogany	Below 7,000' 4/10	5/15	5/25	6/20	7/15	Continuous
	Above 7,000' 4/20	5/25	6/5	6/30	7/15	
Antelope Bitterbrush	Below 7,000' 4/15	5/20	6/1	6/20	7/5	Continuous
	Above 7,000' 4/25	5/30	6/10	6/30	7/15	
Crested Wheatgrass	Below 7,000' 3/20	5/10	5/25	6/15	7/1	8/15 until frost
	Above 7,000' 4/1	5/20	6/5	6/25	7/10	
Western Wheatgrass	Below 7,000' 4/10	6/1	6/15	7/5	7/20	8/15 until frost
	Above 7,000' 4/10	6/1	6/15	7/5	7/20	
Bluebunch Wheatgrass	Below 7,000' 4/1	5/20	6/5	6/25	7/10	Negligible
	Above 7,000' 4/10	6/1	6/15	7/5	7/20	
Indian Ricegrass	Below 7,000' 4/1	6/1	6/15	7/1	7/20	Negligible
	Above 7,000' 4/10	6/10	6/25	7/10	8/1	
Needle-and-Thread Grass	Below 7,000' 3/20	5/10	5/25	6/20	7/5	Negligible
	Above 7,000' 4/1	5/20	6/5	6/30	7/15	
Columbia Needlegrass	Below 7,000' 3/20	5/10	5/25	6/20	7/5	Negligible
	Above 7,000' 4/1	5/20	6/5	6/30	7/15	
Letterman Needlegrass	Below 7,000' 3/20	5/10	5/25	6/20	7/5	Negligible
	Above 7,000' 4/1	5/20	6/5	6/30	7/15	

Source: Three Corners Planning Documents.

TABLE 2-10

Proposed or Candidate Threatened and Endangered Plant Species
That Have Been Collected or May Occur in the Planning Unit

Candidate Threatened Species

1. Cryptantha stricta Family: Boraginaceae
 Cover type: Unknown.
 Special Habitat Requirements: "Clay or shale of the transition zone" (Welch-Moore, 1973).
 Elevation: Unknown.
 Abundance: Widespread throughout NE Utah: common.
 Flower Time: Unknown
 Note: Collected in 1978 from several localities in the Three Corners Planning Unit.

2. Arabis demissa var. languida Family: Brassicaceae
 Cover Type: Sagebrush and juniper.
 Special Habitat Requirements: Limestone outcrops.
 Elevation: 6,000-7,500 feet.
 Abundance: Rare, endemic.
 Flower Time: May-June.
 Note: Collected in 1978 in the Antelope Flat-Goslin Mountain-Clay Basin Allotment.

3. Arabis demissa var. russeola Family: Brassicaceae
 Cover Type: Pinyon-juniper and sagebrush
 Special Habitat Requirements: Limestone hills.
 Elevation: 5,500-7,500 feet.
 Abundance: Rare, endemic.
 Flower Time: May-June.

4. Eriogonum saurinum Family: Polygonaceae
 Cover Type: Juniper and sagebrush
 Special Habitat Requirements: Steep hillsides and ridges of Mowry shale-acid soil.
 Elevation: 5,200-7,000 feet.
 Abundance: Locally common, edaphically restricted.
 Flower Time: Late July to September.

5. Eriogonum viridulum Family: Polygonaceae
 Cover Type: Salt bush and sagebrush; pinyon-juniper also understory of ponderosa pine forest.
 Special Habitat Requirements: Clay hills and flats.
 Elevation: 5,800-7,700 feet.
 Abundance: Common, but Uinta Basin endemic.
 Flower Time: July-September.

Table 2-10 (continued)

Candidate Threatened Species (continued)

6. Penstemon acaulis Family: Scrophulariaceae
Cover Type: Unknown.
Special Habitat Requirements: Gravelly, rocky hills and ridge tops.
Elevation: 5,500-7,200 feet.
Abundance: Unknown, endemic.
Flower Time: Unknown
Note: Collected in 1978 in the Bridgeport Allotment.^a
Apparently very rare.

Proposed Endangered Species

1. Parthenium ligulatum^b Family: Asteraceae
Cover Type: Unknown.
Special Habitat Requirements: Gypseous shale-selenium rich soils;
bare clayey and gravelly knolls on ridges.
Elevation: 5,400-6,500 feet.
Abundance: Endemic.
Flower Time: May-June.
Note: Widespread on Green River Shales; first collected in Daggett
County in 1978 in the Bridgeport Allotment.^a
2. Cryptantha breviflora^b Family: Boraginaceae
Cover Type: Pinyon-juniper
Special Habitat Requirement: Heavy clay soils, dry rocky hillsides-
Green River Shale Formation.
Elevation: 5,000-5,800 feet.
Abundance: Locally common-common throughout Uintah Basin but endemic
to Uintah Basin.
Flower Time: May-July.
3. Astragalus detritalis^b Family: Fabaceae
Cover Type: Open stands of Utah juniper and sagebrush.
Special Habitat Requirements: Cobblestone bluff, barren knolls,
hilltops, and gullied badlands (on
shale, sandstone, or stone alluvial
clay); not restricted edaphically.
Elevation: 5,200-9,000 feet.
Abundance: Local but forming colonies in scattered stations, endemic
to Uintah Basin.
Flower Time: May-June.

Table 2-10 (concluded)

Proposed Endangered Plants (continued)

-
4. Astragalus saurinus^b Family: Fabaceae
 Cover Type: Unknown.
 Special Habitat Requirements: Morrison, Carmel Formations; canyon benches and saddles or draws of gullied badlands; in sandy clay soils derived from weathered sandstones. Literature indicates that it also occurs on Moenkopi Formation.
 Elevation: 4,850-5,400 feet.
 Abundance: Local, forming colonies endemic and edaphically restricted.
 Flower Time: Late April to July.
5. Oxytropis obnapiformis Family: Fabaceae
 Cover Type: Pinyon-juniper and cottonwood.
 Special Habitat Requirements: Dry sandy areas at mid-elevations; sand hills and bluffs.
 Elevation: 5,900-8,000 feet.
 Abundance: Rare.
 Flower Time: Unknown
 Note: Collected in 1978 in the Brigeport Allotment^a.
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Source: U.S.F.S. (Intermountain Region) "Data Summary of Proposed Endangered or Threatened Plant Species," September, 1977.
 "Utah Plants" (Welsh-Moore, 1973).

^aBLM, 1978, Memorandum to District Manager, Vernal, from Elizabeth Neese, Range Tech. (Botanist), July 14, 1978 (Appendix II-4).

^bFederally proposed for endangered status in Federal Register, Vol. 41, No. 117, Wednesday, June 16, 1976, pp. 24523-24572.

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-11
Estimated Forage Production and Condition

Proposed Action Sub-component and Allotment	Forage Production (AUMs)			Forage Condition (Acres)		
	Total	Inventoried ^a	Other ^b	Good	Fair	Poor
<u>CONTINUATION OF EXISTING MANAGEMENT</u>	14,390	11,031	3,359	26,406	42,763	5,799
<u>No Livestock Grazing</u>	508	179	329	539	2,321	0
Rye Grass	508	179	329	539	2,321	0
<u>Continue Allotment-Wide Grazing</u>	6,317	4,520	1,797	25,867	40,442	4,539
<u>Spring (April and May only)</u>	2,935	1,619	1,316	5,197	10,859	4,539
Bridgeport	794	389	405	0	3,759	4,539
Taylor Flat-Watson	2,141	1,230	911	5,197	7,100	0
<u>Spring and Fall (Begin in May)</u>	2,046	1,820	226	4,141	1,334	0
Bowery Spring	638	535	103	1,240	0	0
Gadson Draw-Gerber Spring	494	413	81	1,310	400	0
Highway	200	197	3	150	290	0
McKee Spring	413	406	7	760	120	0
Natural Lake	275	250	25	681	444	0
Smokem-up	26	19	7	0	80	0
<u>Spring-Summer-Fall (Begin in May or June)</u>	890	742	148	2,639	1,581	0
Bates Spring	112	105	7	60	260	0
Beaver Dam	135	124	11	80	200	0
Blair Basin	58	40	18	240	120	0
East Cow	104	75	29	0	590	0
Log Cabin	108	88	20	195	305	0
Mail Draw	170	135	35	684	106	0
Mame's Hole-Bear Hollow	203	175	28	1,380	0	0
<u>Spring-Summer (Begin in June)</u>	446	339	107	1,929	351	0
Cove	420	323	97	1,929	121	0
West Cow	26	16	10	0	230	0

TABLE 2-11 (continued)

Proposed Action Sub-component and Allotment	Forage Production (AUMs)			Forage Condition (Acres)		
	Total	Inventoried ^a	Other ^b	Good	Fair	Poor
<u>CONTINUATION OF EXISTING MANAGEMENT</u> (continued)						
<u>Continue Existing Improved Management</u>	7,565	6,332	1,233	11,961	26,317	1,260
<u>Rest Rotation</u>	2,265	1,677	588	6,015	4,733	1,260
Hoy Mountain (Spring, Summer, Fall Grazing)	781	637	144	1,866	1,210	474
Red Creek (Spring Grazing)	1,484	1,040	444	4,149	3,523	786
<u>Deferred Rotation</u>	2,359	1,906	453	676	14,754	0
Dry Creek-South Pot Creek- Wild Mountain (Spring, Summer, Fall Grazing)	2,359	1,906	453	676	14,754	0
<u>Deferred Rotation and Rest Rotation</u>	2,941	2,749	192	5,270	6,830	0
Ruple Cabin (Spring, Summer Grazing)	2,941	2,749	192	5,270	6,830	0
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>	19,953	14,962	4,991	29,403	83,522	2,616
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>	15,767	11,146	4,621	22,752	78,420	2,616
Clay Basin-Antelope Flat- Goslin Mountain	4,915	3,265	1,650	724	26,326	1,252
Gadson	340	330	10	590	400	0
Hatch Cove	642	531	111	1,555	1,373	42
Hoy Flat	752	425	327	272	9,818	0
Jackson Draw-Crouse Canyon-Dry Hollow	1,704	1,190	514	2,962	5,186	664
Little Hole	1,361	710	651	4,449	2,735	0
Offield Mountain	580	330	250	3,794	3,136	0
Pot Creek	191	140	51	322	1,338	0
School Bus	293	270	23	296	663	521
Sears Canyon-Marshall Draw	1,465	1,011	454	3,699	6,564	137
Serviceberry Spring	265	233	32	789	1,141	0
Shiner	353	222	131	1,205	575	0
Warren Draw	965	785	180	0	7,270	0
Willow Creek	1,941	1,704	237	2,095	11,895	0

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-11 (concluded)

Proposed Action Sub-component and Allotment	Forage Production (AUMs)			Forage Condition (Acres)		
	Total	Inventoried ^a	Other ^b	Good	Fair	Poor
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> (continued)						
<u>Spring and Fall, With Periodic Spring Deferment</u>	4,186	3,816	370	6,678	5,102	0
Bealer Basin-Diamond						
Gulch-Diamond Spring	2,354	2,200	154	3,099	2,551	0
Cooper Draw	780	734	46	476	2,004	0
Davis Draw-Crouse Reservoir- Lambson	1,052	882	170	3,103	547	0
GRAND TOTAL	34,343	25,993	8,350	55,836	126,285	8,415

Source: Three Corners Planning Documents.

^aForage identified in BLM surveys of 1958 or 1976.

^bAdditional forage known to be used by big game, based on actual big game use, fecal analysis, and lands not grazed by livestock.

the percentage of desirable, intermediate, and undesirable plants growing on the range and soil erosion conditions. Desirability is a function of whether the plants are preferred by the kind of grazing animal. Appendix II-5 describes forage condition categories and methodology for determining forage condition classes.

Table 2-11 shows the estimated forage condition for each grazing allotment within the Three Corners Planning Unit. There are 8,415 acres in poor forage condition in the planning unit. The areas in poor condition are mostly pinyon-juniper and Douglas fir forest and have little forage value for grazing animals. Pinyon-juniper and Douglas fir probably represent the natural climax vegetation on these sites (BLM, 1979).

Forage Condition Trend

Forage condition trend describes the changes occurring in forage condition. It is expressed as improving, static, or declining.

Forage condition trend studies have been conducted on five allotments which include 30 percent of the planning unit's public land. Table 2-12 shows the known forage condition trend. (See Figure 2-4 for a comparison of photographs.) Techniques used to determine trend are described in Appendix II-6.

Even though empirical data is lacking, it is the opinion of local range technicians and managers, based on observations, experience, and comparisons to similar allotments elsewhere, that conditions are either static or improving on all allotments in the planning unit (BLM, 1979).

8. Animal Life

Big Game

Principle big game species in the planning unit are mule deer, elk, and pronghorn antelope. Big game numbers are fewer than they were 15 years ago. Present population trends for big game animals are given on Table 2-13. Appendix II-7 shows the methods used to estimate big game populations.

TABLE 2-13

Big Game Population Trends

Species	Type of Study	Trend
Deer	Pellet Group	Up
Elk	Aerial Census	Slightly up
Antelope	Aerial Census	Static

Source: UDWR, 1977.

TABLE 2-12

Forage Condition Trend

Allotment	Year Study Established	Trend (acres)		
		Improving	Static	Declining
Clay Basin-Antelope Flat -Goslin ^a Mountain	1955	19,275	9,027	--
Hoy Mountain	1969	2,039	1,511	--
Red Creek	1967	4,889	3,569	
Ruple Cabin	1967	12,100	--	--
Taylor Flat ^a Watson	1967	4,826	7,471	--
Total		43,129	21,578	--

Source: Three Corners Planning Documents.

^aTrend information is extrapolated from Clay Basin and Antelope Flat allotments.

The estimated big game habitat rating, is shown on Table 2-14, was provided by UDWR professional evaluation by assigned conservation officers. Neither methodology or quantitative data were provided.

Estimates indicate that there are currently about 5,712 unallocated AUMs available to big game on the public lands (see Appendix I-3); therefore, there should be little competition for forage on public lands. During 1977 and 1978, however, private landowners on the East Cow, Blair Basin, Cove allotments made three formal complaints to the UDWR concerning deer and elk use of private forage in the planning unit (UDWR, 1978).

Mule Deer

Virtually the entire planning unit is important habitat for deer. UDWR tagging studies indicate deer migrate to Clay Basin, Red Creek Flat, Taylor Flat and the lower elevation areas of the Rye Grass and Willow Creek allotments for crucial winter ranges from summer range on Diamond Mountain Plateau, the Uinta Mountains, and areas of Colorado and Wyoming outside of the planning unit (Warren, 1973; Franzon, 1968). The spring-fall ranges adjacent to the wintering areas are used for fawning areas. Figure 2-10 shows the crucial deer winter range.

Deer numbers were purposely reduced for a number of years to reduce pressures on winter range. Populations are well below habitat carrying capacity, with a slight upward trend (UDWR, 1972). Estimated deer numbers by allotment are shown on Table 2-15 (methodology is shown in Appendix II-7). As indicated on Table 2-15, 2,047 deer summer in the planning unit and 5,266 deer winter in the area. Important year-long forage species include antelope bitterbrush, Saskatoon serviceberry, curlleaf mountain mahogany, birchleaf mountain mahogany, big sagebrush and black sagebrush. Succulent vegetation (forbs and grasses) provides the bulk of spring-fall and summer forage (UDWR, 1956).

BLM and UDWR cooperatively rehabilitated about 4,000 acres of pinyon-juniper lands in 1964 to improve winter range on Red Creek-Flat and Taylor Flat allotments. Improved condition on winter ranges have resulted from these forage development projects, retirement of livestock preference grazing on two allotments, a decline in the use of vegetation by reduced deer populations through the 1960s, a change from sheep to cattle by many permittees, and a reduction in livestock numbers.

Winter range has been identified as the limiting factor for deer in the planning unit. The condition and amount of winter range fluctuates with the severity of the winter.

Special use areas important to deer include fawning areas, crucial winter ranges (especially in Clay Basin and Browns Park), riparian areas, and water sources.

Elk

Three separate herds of elk--the Goslin Mountain, Three Corners, and Diamond Mountain populations--inhabit two UDWR hunting units (7 and 8A) within the planning unit. The Goslin Mountain and Three Corners populations are stable to slightly increasing while the Diamond Mountain one is static with a slight downward trend (UDWR, 1978).

The Goslin Mountain herd (about 60 animals) generally spends the summer on the Goslin Mountain Plateau and winters at the base of Goslin Mountain in Clay Basin and Antelope Flat and in Wyoming. The Three Corners herd (about 25

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-14

Major Game Species Overall Habitat Rating

Proposed Action Sub-component and Allotment	Deer		Elk		Antelope		Sage Grouse	
	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating
<u>CONTINUATION OF EXISTING MANAGEMENT</u>								
<u>No Livestock Grazing</u>								
Rye Grass	Summer and Winter	Good	Summer and Winter	Good			Summer	Fair
<u>Continue Allotment-Wide Grazing</u>								
<u>Spring (April and May only)</u>								
Bridgeport	Winter	Good			Summer and Winter	Good	Summer and Winter	Fair and good
Taylor Flat-Watson	Winter	Fair	Winter	Fair				
<u>Spring and Fall (Begin in May)</u>								
Bowery Spring	Winter	Fair					Summer and Winter	Fair
Gadson Draw-Gerber Spring	Winter	Fair	Summer	Fair			Summer and winter	Fair
Highway	Winter	Fair	Summer and Winter	Fair				
McKee Spring	Winter	Fair	Summer and Winter	Fair			Summer	Fair
Natural Lake	Summer and Winter	Good	Summer and Winter	Good				
Smokem-up	Summer and Winter	Fair	Summer and Winter	Fair				
<u>Spring-Summer-Fall (Begin in May or June)</u>								
Bates Spring	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
Beaver Dam	Summer	Fair	Summer	Fair			Summer	Fair
Blair Basin	Summer and Winter	Fair	Summer and Winter	Fair			Summer and Winter	Good Fair
East Cow	Summer and Winter	Fair	Summer and Winter	Fair				
Log Cabin	Summer	Good	Summer	Good				
Mail Draw			Summer and Winter	Fair			Summer and Winter	Fair
Mame's Hole-Bear Hollow	Summer and Winter	Good	Summer and Winter	Good Fair				
<u>Spring-Summer (Begin in June)</u>								
Cove	Summer and Winter	Fair	Summer and Winter	Fair			Summer and Winter	Good
West Cow	Summer and Winter	Fair	Summer and Winter	Fair			Summer and Winter	Good

TABLE 2-14 (continued)

Proposed Action Sub-component and Allotment	Deer		Elk		Antelope		Sage Grouse	
	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating

CONTINUATION OF EXISTING MANAGEMENT
Continued

Continue Existing Improved Management

Rest Rotation

Hoy Mountain (Spring, Summer, Fall Grazing)	Summer and Winter	Fair	Summer and Winter	Good			Summer	Fair
Red Creek (Spring Grazing)	Winter	Fair					Summer and Winter	Fair

Deferred Rotation

Dry Creek-South Pot Creek- Wild Mountain (Spring, Summer, Fall Grazing)	Summer and Winter	Good	Summer and Winter	Fair Good			Summer and Winter	Good
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Deferred Rotation and
Rest Rotation

Ruple Cabin (Spring, Summer Grazing)	Summer and Winter	Fair	Summer and Winter	Poor			Summer and Winter	Poor
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IMPLEMENT IMPROVED GRAZING MANAGEMENT

Spring, Summer, and Fall, with Periodic
Spring Deferment

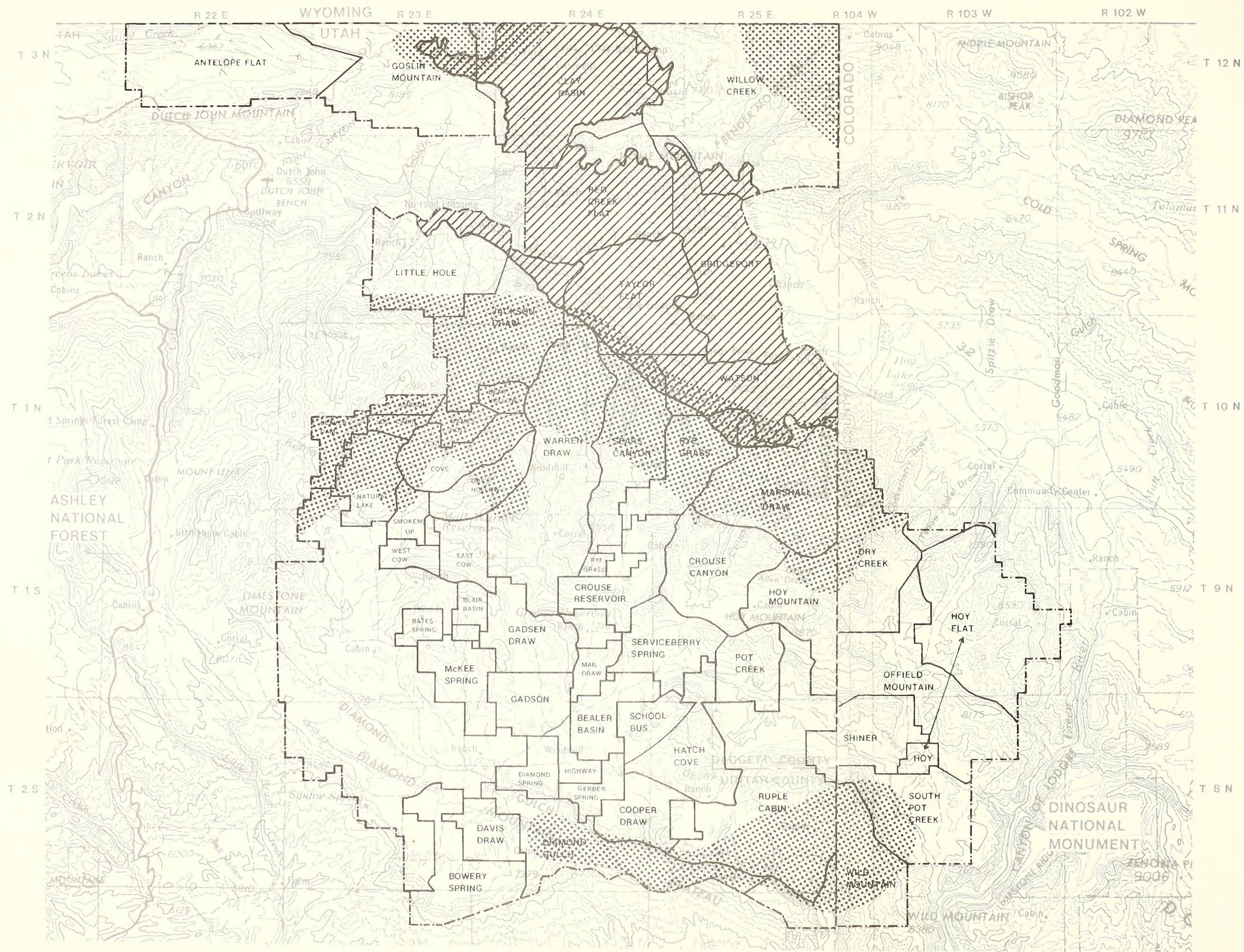
Clay Basin-Antelope Flat- Goslin Mountain	Summer and Winter	Fair	Summer and Winter	Fair	Summer and Winter	Good	Summer and Winter	Good
Gadson	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
Hatch Cove	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
Hoy Flat	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
Jackson Draw-Crouse Canyon-Dry Hollow	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
Little Hole	Winter	Fair	Summer and Winter	Fair				
Offield Mountain ^a	Summer and Winter	Good	Summer and Winter	Fair			Summer	Good
Pot Creek	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair
School Bus	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair

TABLE 2-14 (concluded)

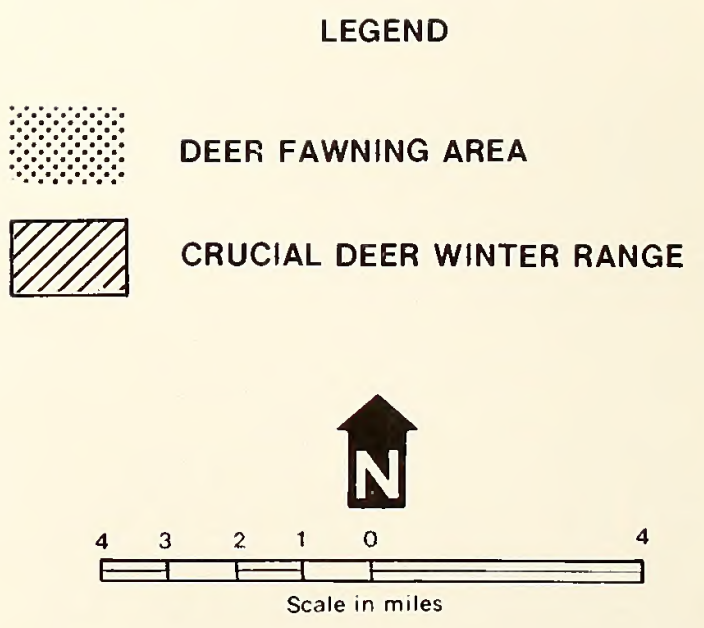
Proposed Action Sub-component and Allotment	Deer		Elk		Antelope		Sage Grouse	
	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating	Season of Use	Overall Habitat Rating
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> (continued)								
Sear Canyon-Marshall Draw	Winter	Fair	Summer and Winter	Good Fair			Summer	Fair
Serviceberry Spring	Summer	Fair	Summer and Winter	Fair			Summer	Fair
Shiner ^a	Summer and Winter	Good	Summer and Winter	Good			Summer and Winter	Good
Warren Draw	Summer and Winter	Good	Summer and Winter	Good			Summer	Fair
Willow Creek	Winter	Fair	Summer and Winter	Fair			Summer and Winter	Fair
<u>Spring and Fall, With Periodic Spring Deferment</u>								
Bealer Basin-Diamond Gulch-Diamond Spring	Summer and Winter	Fair	Summer and Winter	Fair			Summer and Winter	Fair
Cooper Draw	Summer and Winter	Fair	Summer and Winter	Fair			Summer and Winter	Fair
Davis Draw-Crouse Reservoir-Lambson	Summer and Winter	Fair	Summer and Winter	Fair			Summer	Fair

Source: UDWR, 1979.

^aData provided by John Ellenberger, Colorado Game and Fish Department.



SOURCE: THREE CORNERS PLANNING DOCUMENTS



IMPORTANT DEER AREAS

FIGURE 2-10

TABLE 2-15

Deer Populations: Forage Use and Availability

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u>	658	2,363	558	2,839	943	3,557	365	738
<u>No Livestock Grazing</u>	50	222	43	265	46	285	3	20
Rye Grass	50	221	43	308	46	285	3	20
<u>Continue Allotment-Wide Grazing</u>	382	1,245	322	1,517	667	1,845	325	368
<u>Spring (April and May only)</u>	52	1,100	44	1,323	134	1,459	90	136
Bridgeport	16	350	13	434	15	509	2	88
Taylor Flat-Watson	36	750	31	933	119	953	88	51
<u>Spring and Fall (Begin in May)</u>	120	120	101	144	297	355	196	211
Bowery Spring	26	120	22	166	40	355	18	211
Gadson Draw-Gerber Spring	36	0	31	31	74	0	43	0
Highway	5	0	4	4	46	0	42	0
McKee Spring	11	0	9	9	77	0	68	0
Natural Lake	31	0	26	0	50	0	24	0
Smokem-up	11	0	9	0	10	0	1	0
<u>Spring-Summer-Fall (Begin in May or June)</u>	147	0	124	0	162	0	38	0
Bates Spring	11	0	9	0	25	0	16	0
Beaver Dam	11	0	9	0	20	0	11	0
Blair Basin	11	0	9	0	9	0	0	0
East Cow	26	0	22	0	22	0	0	0
Log Cabin	20	0	17	0	19	0	2	0
Mail Draw	42	0	36	0	40	0	4	0
Mame's Hole-Bear Hollow	26	0	22	0	27	0	5	0
<u>Spring-Summer (Begin in June)</u>	63	42	53	50	74	31	1	21
Cove	54	39	46	93	66	27	0	20
West Cow	9	3	7	10	8	4	1	1

TABLE 2-15 (continued)

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u> (continued)								
<u>Continue Existing Improved Management</u>	226	880	193	1,057	230	1,427	37	370
<u>Rest Rotation</u>	66	475	56	571	61	860	5	289
Hoy Mountain (Spring, Summer, Fall Grazing)	40	75	34	90	34	90	0	0
Red Creek (Spring Grazing)	26	400	22	481	27	770	5	289
<u>Deferred Rotation</u>	110	305	94	366	51	133	8	13
Dry Creek-South Pot Creek- Wild Mountain (Spring, Summer, Fall Grazing)	110	305	94	366	51	133	8	13
<u>Deferred Rotation and</u> <u>Rest Rotation</u>	50	100	43	120	118	434	24	68
Ruple Cabin (Spring, Summer Grazing)	50	100	43	120	118	434	24	68
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>	1,389	2,903	1,187	3,486	1,487	4,309	300	823
<u>Spring, Summer, and Fall, with</u> <u>Periodic Spring Deferment</u>	1,276	2,567	1,091	3,083	1,311	3,332	220	249
Clay Basin-Antelope Flat- Goslin Mountain	307	950	263	1,142	264	1,152	1	10
Gadson	15	0	13	0	58	0	45	0
Hatch Cove	40	75	34	90	55	121	21	31
Hoy Flat	75	250	64	300	70	318	6	18
Jackson Draw-Crouse Canyon-Dry Hollow	140	325	120	391	120	392	0	1
Little Hole	201	300	172	360	197	418	25	58
Offield Mountain	40	201	34	241	36	247	2	6
Pot Creek	35	15	30	18	32	18	2	0
School Bus	26	0	22	0	42	0	20	0
Sear Canyon-Marshall Draw	111	276	95	331	109	396	14	65
Serviceberry Spring	40	0	34	0	52	0	18	0
Shiner	20	100	17	120	17	121	0	1
Warren Draw	125	25	107	30	135	36	28	6
Willow Creek	101	50	86	60	124	113	38	53

TABLE 2-15 (concluded)

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> (continued)								
<u>Spring and Fall, With Regular Spring Deferment</u>	113	336	96	403	176	977	80	574
Bealer Basin-Diamond Gulch-Diamond Spring	41	176	35	211	73	512	38	301
Cooper Draw	16	50	13	60	38	260	25	200
Davis Draw-Crouse Reservoir-Lambson	56	110	48	132	65	205	17	73
TOTAL ^b	2,047	5,266	1,745	6,325	2,430	7,866	665	1,561

Source: Three Corners Planning documents.

^aSummer months are calculated at 5 months, winter months are the remaining 7 months of the year.

^bDeer population estimates will not exactly convert back to AUMs because population figures were rounded up.

animals) generally summers in the Bender Mountain area and winters in all three states. The Diamond Mountain herd (about 260 animals) summers on Diamond Mountain and winters in the drainages leading into Browns Park area and in the Pot Creek area of Colorado (UDWR, 1978). This number increases with elk from summer range on the Ashley National Forest to approximately 413 during the winter months. Table 2-16 lists elk use on the planning unit. (The methodology for this data is shown in Appendix I-7.) Figure 2-11 shows the winter range for elk.

Important grass forage species include needle-and-thread grass, Indian ricegrass, western wheatgrass and bluebunch wheatgrass. These plants are increasing over most of the planning unit (BLM, 1978). Important browse species include antelope bitterbrush, serviceberry, birchleaf mountain mahogany and curlleaf mountain mahogany (Kufeld, 1973).

Limiting factors for elk in the planning unit are presently unknown. Competition for forage between deer and elk is not presently a problem because different areas are usually used during critical winter periods. Private land on Diamond Mountain could limit elk populations because of their use of these lands and the resultant resistance by landowners. Additional study will be required of all elk populations within the planning unit to fully assess limiting factors as they relate to increased population levels.

General forage conditions are rated good (see Table 2-11). Special use areas include riparian habitat including water and associated wallows, crucial winter range, and calving areas on Diamond Mountain. Other calving areas exist in the planning unit, but have not been identified.

There are 3,457 AUMs of elk forage available in the planning unit for expansion. Most of these AUMs (2,947) are associated with Diamond Mountain and are predominantly summer AUMs.

Pronghorn Antelope

Antelope occur in the Antelope Flat, Goslin Mountain, Clay Basin, Willow Creek, and Bridgeport allotments. The Bridgeport population is estimated at approximately 21 animals while the larger herd in the Antelope-Clay Basin-Willow Creek area is estimated at about 265 animals. Table 2-17 shows estimated populations. All are considered resident even though some movement into Wyoming and Colorado occurs. Both populations are in a static condition (UDWR, 1979).

The habitat, most of which is big sage types, is rated in good condition (see Table 2-14). Big sagebrush, fourwing saltbush and black sagebrush are the important shrubs for antelope. Important succulent vegetation (forbs and grasses) includes phlox, arrowleaf balsamroot, lupine, needle-and-thread grass, Indian ricegrass, and western wheatgrass.

The carrying capacity of the antelope area is limited by space. The restricted size of the area limits the size of the population. Because of this restriction, little potential for increased numbers is evident. A total of 25 AUMs is available for expansion, which would provide for an average increase of 1 animal per year for 20 years (see Table 2-17).

A narrow strip of land along the southern edge of Antelope Flat has been identified as a fawning ground. Other special use areas include watering sites and riparian areas. Figure 2-12 shows crucial antelope winter range.

TABLE 2-16

Elk Populations: Forage Used and Available

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u>	116	160	304	599	815	1,361	511	763
<u>No Livestock Grazing</u>	20	21	53	75	74	103	21	28
Rye Grass	20	21	53	75	74	103	21	28
<u>Continue Allotment-Wide Grazing</u>	61	47	79	172	622	603	465	433
<u>Spring (April and May only)</u>	0	6	0	19	42	126	42	107
Bridgeport	0	0	0	0	42	58	42	58
Taylor Flat-Watson	0	6	0	19	0	68	0	49
<u>Spring and Fall (Begin in May)</u>	20	15	53	56	364	335	311	279
Bowery Spring	0	0	0	0	45	63	45	63
Gadson Draw-Gerber Spring	15	15	40	56	86	121	46	65
Highway	0	0	0	0	40	57	40	57
McKee Spring	0	0	0	0	67	93	67	93
Natural Lake	5	0	13	0	125	0	112	0
Smokem-up	0	0	0	0	1	1	1	1
<u>Spring-Summer-Fall (Begin in May or June)</u>	31	21	0	78	188	103	110	46
Bates Spring	0	0	0	0	13	19	13	19
Beaver Dam	0	3	0	9	81	0	72	0
Blair Basin	5	6	13	19	14	20	1	1
East Cow	5	6	13	19	13	19	0	0
Log Cabin	0	5	0	17	31	0	14	0
Mail Draw	0	6	0	19	0	45	0	26
Mame's Hole-Bear Hollow	0	7	0	26	36	0	10	0
<u>Spring-Summer (Begin in June)</u>	10	11	26	38	28	39	2	1
Cove	9	10	24	34	25	34	1	0
West Cow	1	1	2	4	3	5	1	1

TABLE 2-16 (continued)

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u> (continued)								
<u>Continue Existing Improved Management</u>	26	95	94	353	119	655	25	302
<u>Rest Rotation</u>	26	10	67	37	67	38	0	1
Hoy Mountain (Spring, Summer, Fall Grazing)	26	10	67	37	67	38	0	1
Red Creek (Spring Grazing)	0	0	0	0	0	0	0	0
<u>Deferred Rotation</u>	0	50	0	186	52	256	25	126
Dry Creek-South Pot Creek- Wild Mountain (Spring, Summer, Fall Grazing)	0	50	0	186	52	256	25	126
<u>Deferred Rotation and</u> <u>Rest Rotation</u>	11	35	27	130	0	361	0	175
Ruple Cabin (Spring, Summer Grazing)	11	35	27	130	0	361	0	175
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>	245	290	652	1,079	1,725	2,189	1,073	1,110
<u>Spring, Summer, and Fall, with</u> <u>Periodic Spring Deferment</u>	227	277	604	1,031	1,290	1,627	686	596
Clay Basin-Antelope Flat- Goslin Mountain	61	35	160	130	166	135	6	5
Gadson	0	0	0	0	92	130	92	130
Hatch Cove	5	0	13	0	185	0	172	0
Hoy Flat	0	10	0	37	0	49	0	12
Jackson Draw-Crouse Canyon-Dry Hollow	30	36	80	131	81	131	1	0
Little Hole	37	77	98	286	106	310	8	24
Offield Mountain	0	10	0	37	0	42	0	5
Pot Creek	5	6	13	19	14	20	1	1
School Bus	5	0	13	0	71	0	58	0
Sear Canyon-Marshall Draw	26	40	67	149	122	277	55	128
Serviceberry Spring	5	0	13	0	100	0	87	0
Shiner	0	10	0	37	0	38	0	1
Warren Draw	30	30	80	112	175	244	95	132
Willow Creek	26	25	67	93	178	251	111	158

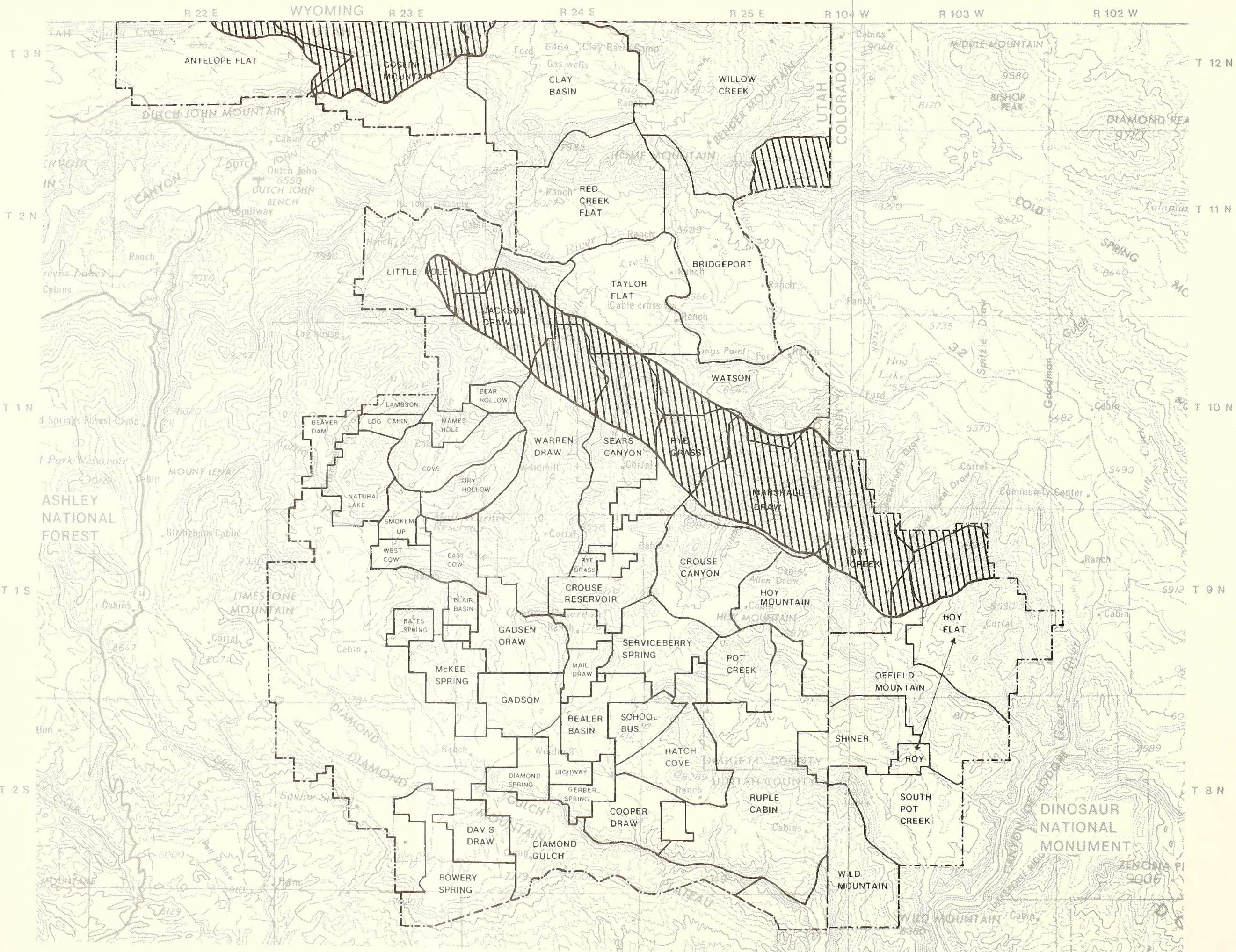
TABLE 2-16 (concluded)

Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> (continued)								
<u>Spring and Fall, With Periodic Spring Deferment</u>	18	13	48	48	435	562	387	514
Bealer Basin-Diamond Gulch-Diamond Spring	0	0	0	0	270	379	270	379
Cooper Draw	0	0	0	0	57	81	57	81
Davis Draw-Crouse Reservoir-Lambson	18	13	48	48	108	102	60	54
TOTAL	345	473	904	1,729	2,540	3,550	1,584	1,873

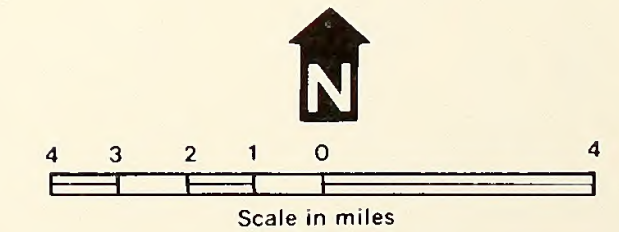
Source: Three Corners Planning document.

^aSummer = 5 months; winter = 7 months.

^bElk population estimates will not convert exactly to AUM estimates because population figures were rounded up.



 **CRUCIAL ELK WINTER RANGE**



SOURCE: THREE CORNERS PLANNING DOCUMENTS

CRUCIAL ELK WINTER RANGE

FIGURE 2-11

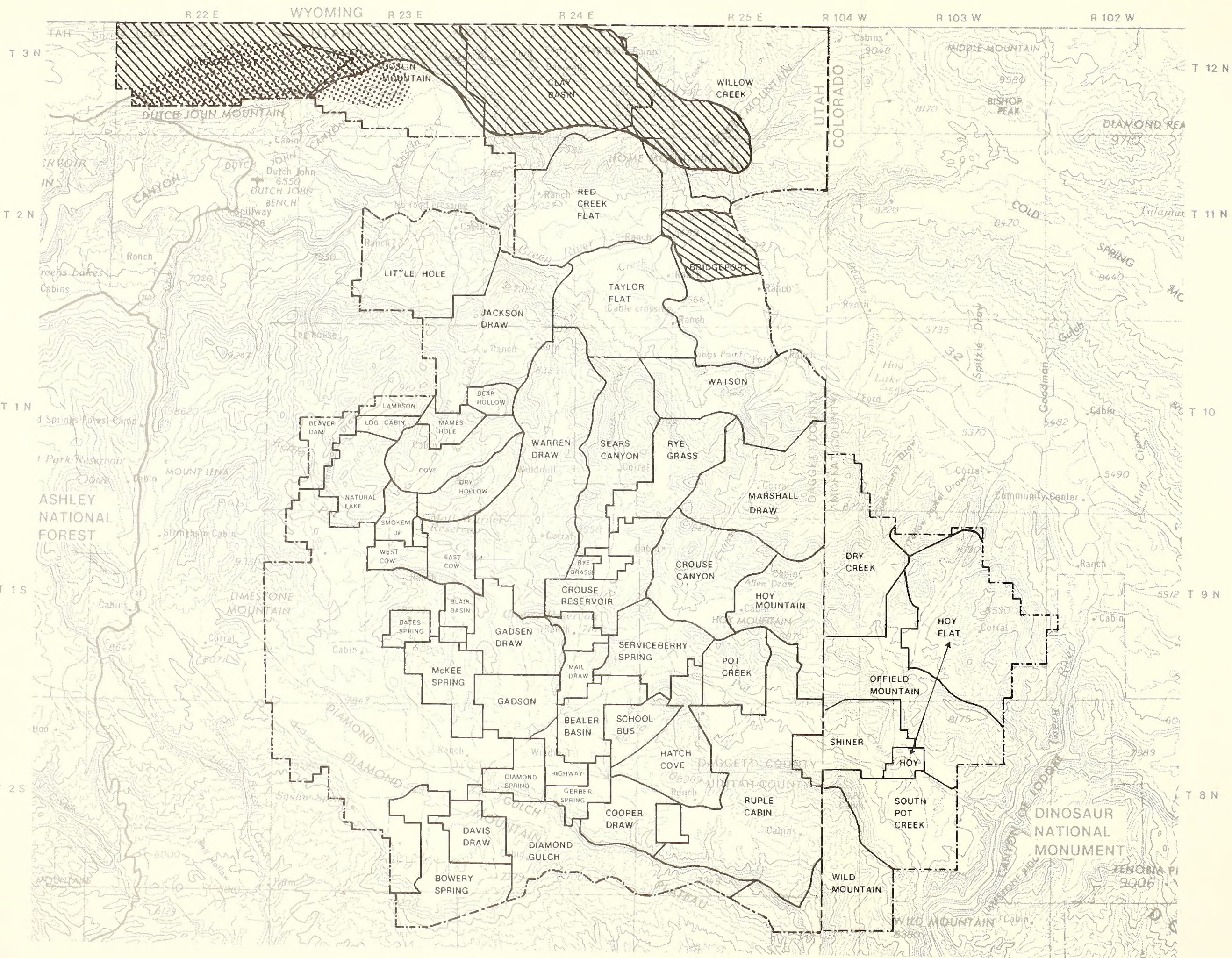
TABLE 2-17

Estimated Antelope Populations, Forage Use, and Availability

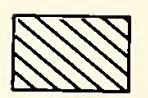
Proposed Action Sub-component and Allotment	Estimated Population		Estimated AUMs Used		Estimated AUMs Produced		AUMs Available for Expansion	
	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a	Summer ^a	Winter ^a
<u>CONTINUE EXISTING MANAGEMENT</u>								
<u>Continue Allotment-Wide Grazing</u>								
<u>Spring (April and May only)</u>								
Bridgeport	20	21	10	15	13	18	2	3
Taylor Flat-Watson	0	0	0	0	1	3	1	3
<u>Continue Existing Improved Management</u>								
<u>Rest Rotation</u>								
Red Creek (Spring Grazing)	0	0	0	0	6	9	5	8
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>								
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>								
Clay Basin-Antelope Flat-Goslin Mountain	235	235	122	171	122	171	0	0
Willow Creek	29	31	15	22	17	24	2	1
TOTAL	284	287	147	208	159	225	10	15

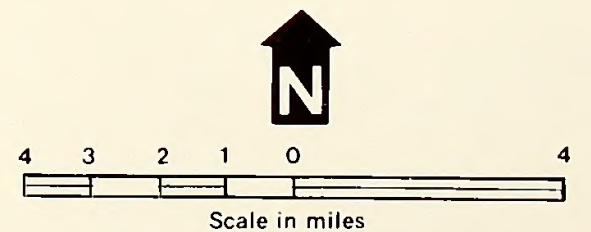
Source: Three Corners Planning Documents.

^aSummer = 5 months; winter - 7 months.^bAntelope numbers will not convert exactly back to AUMs because population figures were rounded up.



LEGEND

-  ANTELOPE FAWNING AREA
-  CRUCIAL ANTELOPE WINTER RANGE



SOURCE: THREE CORNERS PLANNING DOCUMENTS

IMPORTANT ANTELOPE AREAS

FIGURE 2-12

Upland Game

Cottontail Rabbit

Cottontail rabbits are distributed throughout the planning unit and are common at lower elevations. They are recognized as a game animal by the Utah Division of Wildlife Resources and a hunting season and bag limit has been designated. Cottontails also provide an important prey base for several carnivores and a variety of raptors found in the area.

Important forage plants for cottontails include nearly all forms of grass, forbs (summer), and browse plants such as fourwing saltbush, shadscale, rabbitbrush and black greasewood during the winter period.

Little is known concerning limiting factors associated with the habitat. Cycles in population are precipitated by, and durations derived from, changes in habitat combined with other factors such as disease and natural calamities (Wagner, USU).

Mourning Doves

Mourning doves are common through the summer months in the planning unit where habitat is adequate to sustain the species. They are locally abundant on Diamond Mountain in and around dry farms in the area, however, they thrive in other parts of the area as well. Most of the birds begin migrating from the area in early September.

Sage Grouse

Sage grouse are important game birds in the area. They inhabit higher elevations on the Diamond Mountain Plateau, Bender, and Goslin Mountains. Wintering areas are generally around the bases of these mountains as shown on Figure 2-13. The habitat is rated in good condition (Nielson, 1978). Riparian and wet meadow areas, which are particularly important to young birds, are limited and may be a restricting factor to the population. A good variety of desirable forbs provides adequate summer forage. An abundance of big sagebrush is available in all areas for winter forage. The population presently is static to a slight upward trend (UDWR, 1979).

Threatened or Endangered Species

No officially listed threatened species are known to inhabit the planning unit. The only endangered species known to occur in the area is the bald eagle. Approximately 15 bald eagles winter annually along the Green River in the Browns Park area (UDWR, 1978). They generally inhabit the Green River corridor from November through late March or early April. Fish and waterfowl are the main food supply (Spencer, 1976), but non-game mammals provide a secondary food source. The American peregrine falcon, an endangered species, is known to inhabit other areas in northeastern Utah, but no sightings have been made in the planning unit. The principal food items of peregrine falcons are passerine birds, waterfowl, and shorebirds which can comprise up to 95 percent of their diet (Eyre and Paul, 1973; Snow, 1972).

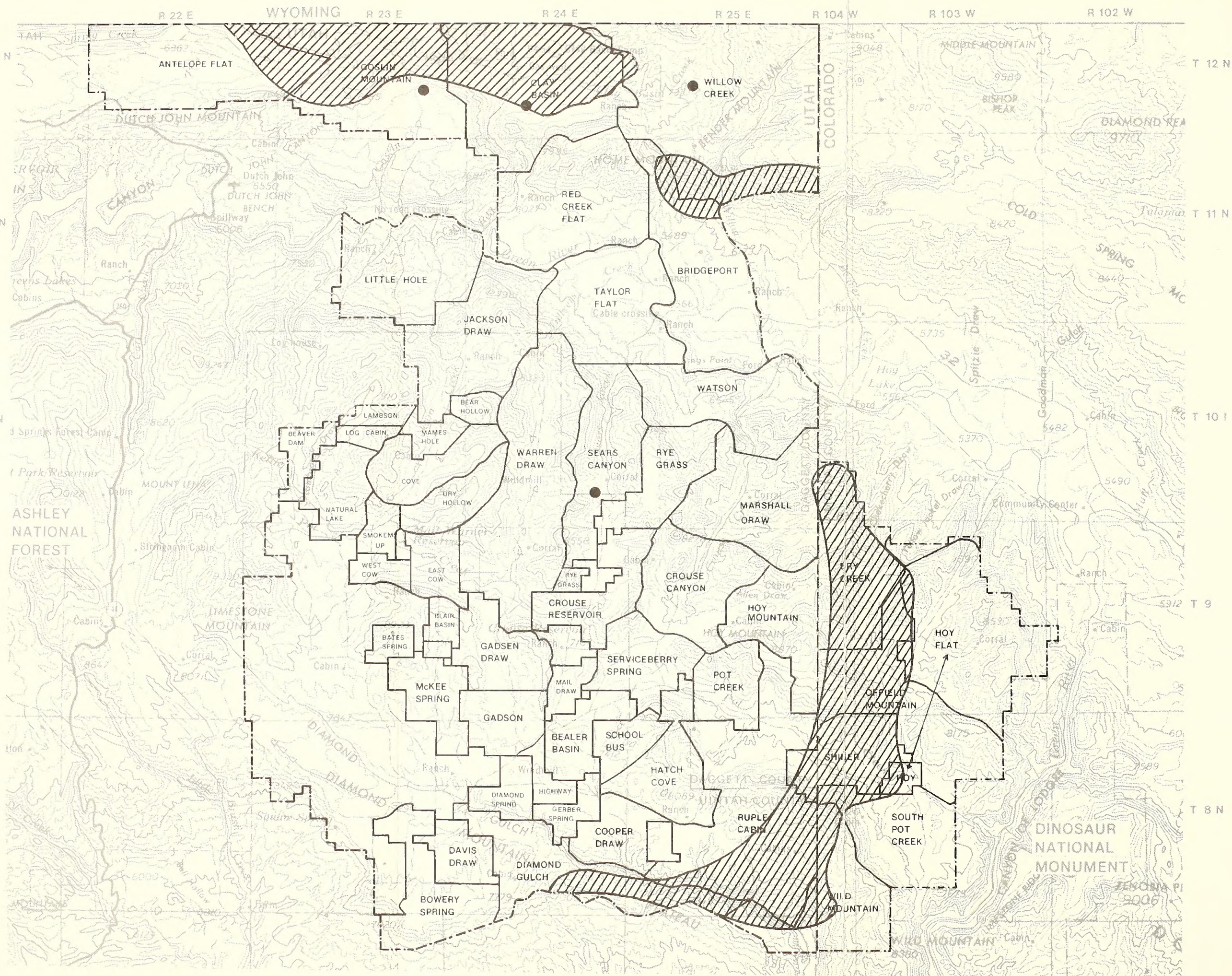


FIGURE 2-13

Wild and Free Roaming Horses and Burros

No wild or free roaming horses or burros or historic range (those existing December 15, 1971) are found in the planning unit.

Fish

Rainbow, cutthroat, brown and brook trout, and flannelmouth sucker are found in waters on public lands in the planning unit. Only the Green River, Jackson Creek, Willow Creek, Calder Pond, and Crouse Reservoir presently support fish populations. Population trends are shown by stream or reservoir and allotment on Table 2-18.

Of the 39.6 miles of shoreline bordering trout waters on public land, about 10.3 miles are accessible to livestock. Table 2-19 shows fisheries habitat condition.

Natural trout reproduction on the Green River is almost non-existent below Red Creek because of sediment from that creek which fills the spawning beds (UDWR, 1978).

Continuous grazing from May to October each year on 1.0 miles of Jackson Creek on public land, and on private land in the Little Hole Allotment, has removed nearly all willow and cottonwood and destroyed the shade canopy on 0.5 miles of the stream in Devils Hole. This lack of a shade canopy, decreases oxygen by raising water temperatures which, when combined with a lack of wintering habitat, cover and low streamflow, limit the trout population to approximately 100 fish per stream mile, about 50 percent of what could otherwise be expected (DWR, 1978).

Waterfowl

There is limited waterfowl habitat in the planning unit. The Green River, Calders Pond, and Crouse Reservoir, and limited stock watering ponds provide the available habitat. In addition, UDWR has developed about 1,000 acres of nesting habitat in the Browns Park Waterfowl Management Area. A small resident population of Canada geese nests at the management area and adjacent sites on the Green river with an annual production of approximately 75 geese (Folks, 1978).

Non-Game Mammals

A variety of small, non-game mammals inhabit the planning unit. Included are 43 species (list of species is on file at the Vernal District Office). No information on relative abundance, by vegetation types, for small mammals is available for the area. These creatures, including the blacktail and white-tailed jackrabbits, form an important prey base for a large group of carnivores and raptors including the endangered bald eagle. They are important as consumers of primary plant production and form an integral part of the food chain. When this class of animals is abundant, they form the primary food source for predators which turn to secondary sources such as sheep, deer, etc., if their primary source is low.

Coyotes are common throughout the planning unit. The species is highly dependent upon a wide variety of prey species including rabbits, small rodents, and limited amount of fruits and berries from a variety of shrubs. Some coyotes prey on young lambs on the historic lambing ranges on Diamond Mountain. The problem sometimes becomes acute, depending upon herding practices, where

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-18

Fisheries and Population Trends

Allotment	Stream or Reservoir	Streambank and Shoreline-Miles				Fish Species	Population Trend
		Public		Private	State		
		Total	Miles Accessible to Livestock				
Bridgeport	Green River	6.5	3.8	3.1	0.5	Cutthroat trout	Increasing
						Rainbow trout	Increasing
						Brown trout	Stable
						Flannelmouth suckers	Unknown
	Willow Creek	1.2	1.2	0.8	0	Cutthroat trout	Unknown
						Rainbow trout	Unknown
Jackson Draw	Green River	2.3	0	0	0	Cutthroat trout	Increasing
	Jackson Creek	0.4	0	3.8	0	Rainbow trout	Increasing
						Brook trout	Unknown
						Rainbow trout	Unknown
Little Hole	Green River	4.0	0.4	0	4.6	Cutthroat trout	Increasing
	Jackson Creek	5.0	1.0	1.0	0	Rainbow trout	Increasing
							Unknown
Red Creek Flat	Green River	4.3	3.0	0.2	0.5	Cutthroat trout	Increasing
						Rainbow trout	Increasing
						Brown trout	Stable
						Flannelmouth suckers	Unknown
Taylor Flat	Green River	6.4	0	4.0	0	Brown trout	Stable
						Rainbow trout	Increasing
						Cutthroat trout	Increasing
						Flannelmouth sucker	Unknown
Watson	Green River	4.2	0	0.5	0	Brown trout	Stable
						Rainbow trout	Increasing
						Cutthroat trout	Increasing
						Flannelmouth sucker	Unknown
Willow Creek	Willow Creek	4.4	0	4.0	0	Brook trout	Unknown
						Cutthroat trout	Unknown
						Rainbow trout	Unknown
Crouse Reservoir	Calder Pond	0.7	0.7	1.6	0	Rainbow trout	Stable
	Crouse Reservoir	0.2	0.2	2.4	0	Rainbow trout	Stable
Total by Ownership		39.6	10.3	21.4	5.6		
Total: 59.3 (40 percent accessible to livestock on public land).							

Source: BLM, 1977.

TABLE 2-19
Condition of Fisheries Habitat^a

Stream	Allotment	Miles of Stream- bank or Reservoir Shoreline on Public Land	Pool-riffle Ratio	Pool Quality	Percent of Streambank With Desirable Material	Class of Bank Cover	Bank Stability	Composite Habitat ^a Condition	Rating
Green River	Bridgeport	6.5	15	15	30	33	71	33	Poor
	Watson	4.2	0	0	30	33	88	30	Poor
	Taylor Flat	6.4	59	59	45	34	62	52	Fair
	Red Creek Flat	4.3	88	88	60	35	70	68	Good
	Little Hole	4.0	55	55	68	57	85	64	Good
Jackson Creek	Little Hole	5.0							
	Devils Hole ^b	0.1	56	0	76	58	93	56	Fair
	Road Crossing ^b	0.4	0	0	82	83	75	48	Poor
	Jackson Draw	0.4	86	22	64	98	85	71	Excellent
Willow Creek	Bridgeport	1.2	No information.						Unknown
	Willow Creek	2.2	91	39	78	97	98	81	Excellent
Calder Pond	Crouse Reservoir	0.7	No information.						Unknown
Crouse Res.	Crouse Reservoir	0.2	No information.						Unknown
Total									
		35.8							

Source: BLM, 1977.

^aValues are percent of optimum for fisheries habitat, as defined in Utah State BLM Manual 6671-stream Surveys. Excellent, >70; Good, 60 to 69; Fair, 50 to 59; Poor, <49.

^bThese are the only inventoried sections of Jackson Creek in the Little Hole Allotment.

DESCRIPTION OF THE ENVIRONMENT

sheep are grazed, coyote population density, availability of primary prey base, and sometimes individual coyotes characteristics. Coyotes provide a moderate amount of sport hunting and trapping, mostly during the winter months when furs are prime.

Typical small carnivores include grey fox, bobcats, and skunks which are found over most of the planning unit. Foxes inhabit the foothill ranges in limited numbers and the population is static. No information regarding limiting factors is known. Small mammals are important prey species for the fox.

Bobcats inhabit the rugged terrain in the planning unit preferring the ledgy, canyon walls where a good prey base of rabbits, other small mammals and birds usually exist. Bobcats are completely protected because of low population levels. This protection resulted from excessive harvest in recent years.

Skunks inhabit areas in and around cultivated lands, valley bottoms, and riparian areas throughout the planning unit. Population levels are static and sufficient prey species are available to maintain existing levels.

Aquatic furbearers found in the planning unit are associated with the Green River and tributaries. Only beaver and mink are managed by UDWR as "furbearers" with controlled harvest. The habitat is rated in fair to good condition for all species with food shortages for beaver in some localized areas (Nielson, 1978). Mink populations are static at a low level. Beaver are cyclic, but populations are stable.

Non-Game Birds

Habitat for shorebirds is closely associated with that for waterfowl, including riparian areas. At least 13 species are found in the planning unit. Available habitat is in good condition. Food for these species is predominantly aquatic insects which are usually abundant where water is available.

Seven species of raptors are found in the planning unit. Some are migrants while others are residents. The raptor habitat is rated in good condition with an adequate prey base and sufficient nesting areas (UDRW, 1979).

A wide variety of this group of birds inhabit the planning unit (approximately 141 species). Both resident and migrants are included. This large and diverse a group include species which occupies varied habitat throughout the planning unit.

Reptiles and Amphibians

Certain reptiles and amphibians are common throughout the planning unit. The area has not been inventoried, but 6 amphibians and 14 reptiles are known to occur. The Green River and other riparian habitats are especially important to amphibians and some reptile species. Both reptiles and amphibians are important prey species for other wild creatures in the area.

Invertebrates

A wide variety of invertebrates are distributed throughout the planning unit. Riparian areas are perhaps the most important areas for most species. Invertebrates are an important source of food for nearly all forms of life at a higher level and provide a vital link in the food chain.

9. Cultural Resources

Approximately 47 prehistoric and historic sites have been recorded in the Three Corners Planning Unit. Most of these are prehistoric lithic scatters consisting of flaking debris or temporary camp sites containing other items indicating repeated or continuous use (firepits, charcoal, etc.). Only a small percentage of the recorded sites in this planning unit can be attributed to specific cultures or time periods. About 4,800 acres of the area in Clay Basin have been intensively inventoried, while the balance of the planning unit has been examined only sporadically for cultural resources.

Early occupation of the region by the Uinta branch of the Fremont Indian culture (about 650 A.D. to 950 A.D.) has been substantially documented (Marwitt, 1970, Breternitz, 1970, Lindsey, 1977). Shoshonean-speaking people are known to have entered the area several times during the fifteenth and sixteenth centuries (Athearn, 1976). There are no recorded prehistoric sites in the planning unit that have been nominated to the National Register of Historic Places.

While the area may never have been host to intensive prehistoric occupation, it was subjected to much historic activity of local and state-wide significance. When the fur trade boomed in the early 1800s, the area became a community of Indians and fur trappers. In the 1870s, the cattle and sheep industries were attracted to this relatively isolated part of Utah and Colorado by the coming of the railroad. The livestock industry attracted the outlaw element--including Butch Cassidy, Matt Warner, and Elza Lay (Athearn, 1976). Because of the significant historical activity, it is very likely that several historic sites eligible for National Register nomination are present.

Doc Parsons Cabin complex, a National Register nominee on land administered by UDWR in the Watson Allotment, was partially destroyed by fire recently. It is not known at this time whether or not the site retains any of its historical significance.

The John Jarvie property, a historic site in the Red Creek Flat Allotment on land owned by the Nature Conservancy, is being considered for nomination to the National Register (Tucker, 1979).

10. Paleontological Resources

There are several exposed fossil-bearing formations in the Three Corners area. Among the more significant are the Morrison Formation, Fort Union Formation, and Hilliard Shale. These formations are known to contain the fossil remains of dinosaurs, plants, and invertebrates.

11. Visual Resources

The planning unit's scenic character provides a visually pleasing variance in landform, vegetation, and color. The landscape is comprised of dry-farmed valleys and hills, mesas, forested mountains, and steep red rock canyons carved by the Green River and its tributaries. Color within the unit is largely a function of vegetation.

Man-made intrusions such as pipelines, transmission lines, and gas developments, dominate the natural landscape of the planning unit in localized areas. Most of the unit, however, continues to appear natural. Evidence of livestock management is common in the form of fencelines, pastures, and chained areas. Livestock grazing often is viewed as a pleasant reminder of historical settlement of the unit.

Of five possible visual resource management (VRM) classes, four have been identified within the planning unit as shown on Figure 2-14. Because the management objectives for each VRM class allow a different degree of modification of the landscape, VRM classes are the basis for determining whether or not a modification would result in a visual impact. (Methodology for determining VRM classes, and the management objectives for each VRM class are described in Appendix II-8.)

12. Land Use

a. Recreation Resources

The planning unit provides less than 1 percent of the total recreational use within Daggett and Uintah counties as shown on Table 2-20. Most recreational use on the planning unit is dispersed.

Hunting of elk, deer, antelope, and sage grouse is the major recreation use, but is somewhat limited because private lands on the valley floors restrict access to the higher public lands. Hunting of bear, cougar, cottontail, blue grouse, mourning dove, and waterfowl also occurs within the planning unit. Trout fishing occurs along the Green River, Willow Creek, Jackson Creek, and at Crouse Reservoir and Calder Pond.

The Green River is used for float-boating from the base of Flaming Gorge Dam through Browns Park.

Figure 2-15 shows the unit's 31 inventoried recreation sites on public land administered by BLM. The sites are used for picnicking and camping. Limited facilities are available at six of the sites along the Green River.

The planning unit also provides general sightseeing opportunities for travelers between Flaming Gorge National Recreation area and Dinosaur National Monument. Four-wheel driving, usually associated with hunting, occurs on unmaintained trails throughout the unit.

Some private land has been subdivided to provide building sites for summer homes in the Taylor Flat area.

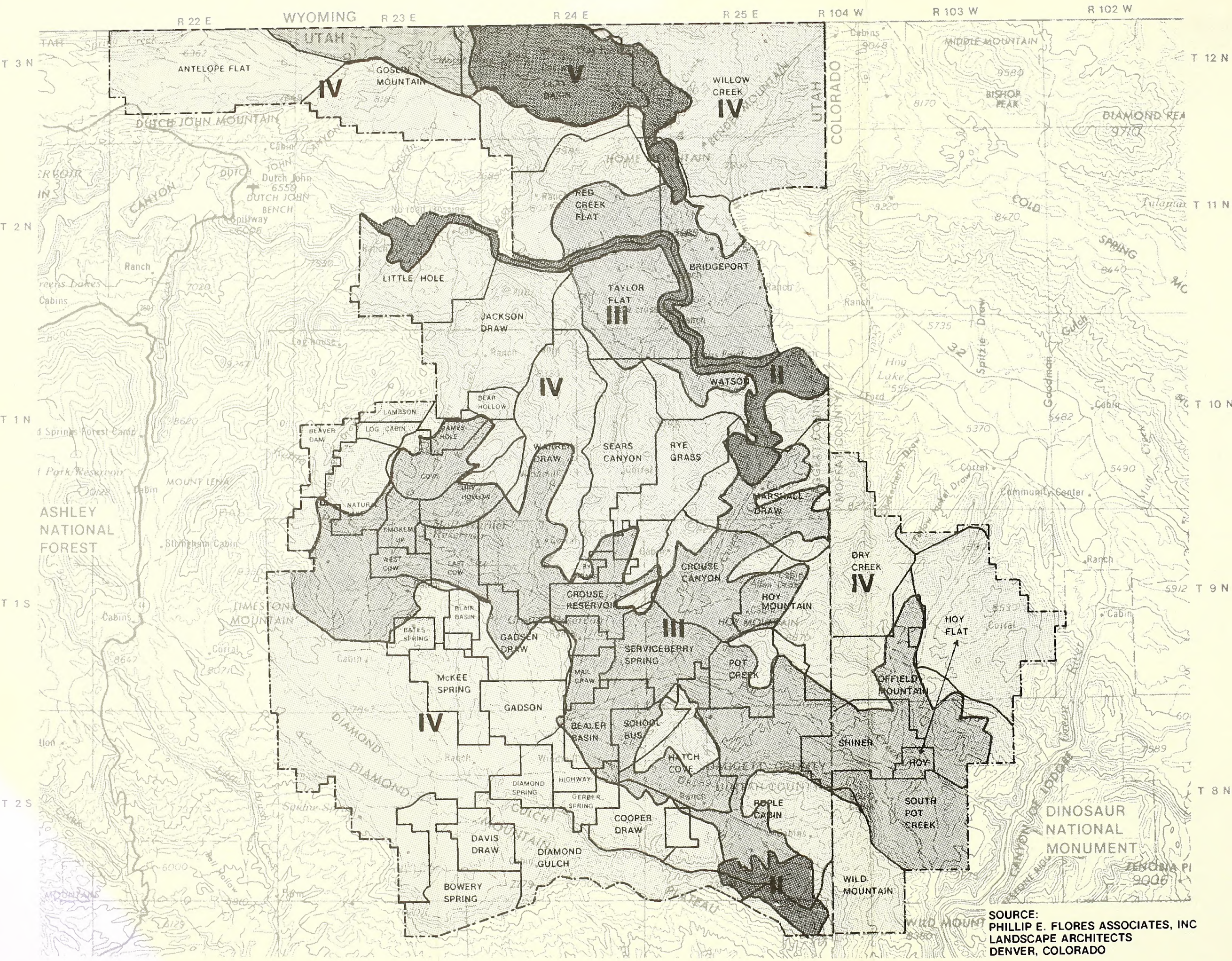
b. Livestock Grazing

The predominant land use in the planning unit is livestock grazing. The planning unit is used by 45 livestock operators and all use public lands administered by BLM in conjunction with other lands such as U. S. Forest Service, National Park Service, state, or private. Most cattle operations use only private and state lands in conjunction with the public lands. Most sheep operations use U. S. Forest Service lands, private, and state lands in conjunction with public lands. Table 2-21 shows how livestock grazing use is distributed on the planning unit.

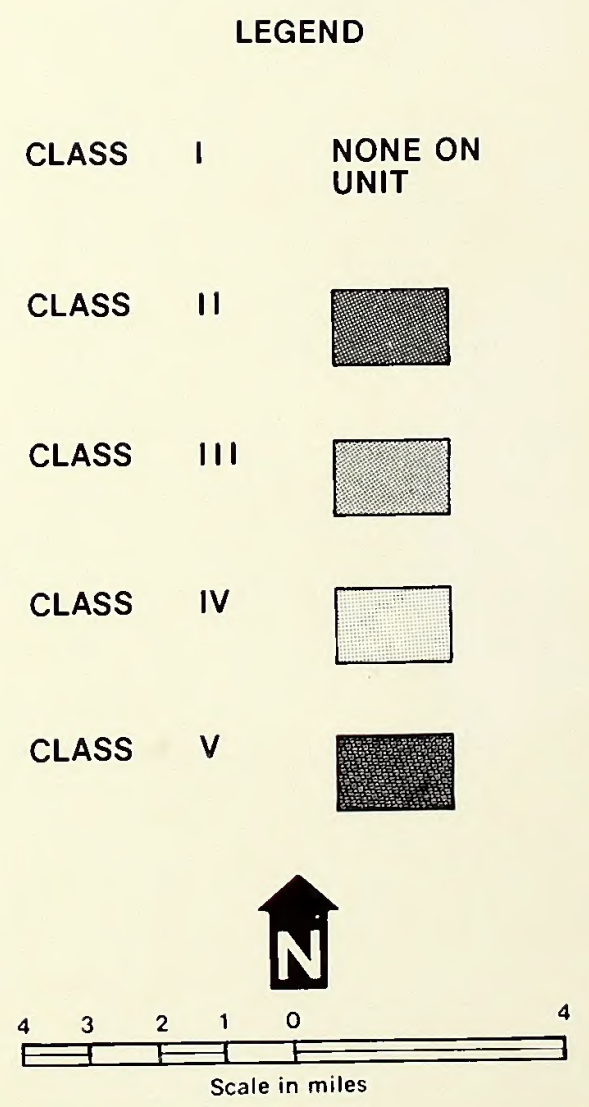
Grazing Operations

There are three different types of livestock operations in the planning unit: cow-calf, yearling cattle, and sheep.

Cow-calf operations have a basic herd of cows, each cow with a young calf, which are grazed on the planning unit during the spring, summer, and fall grazing seasons (April 1 to November 30). (Most operators use the planning unit during the summer grazing season [May 15 to October 30].) Cows give birth to calves on private farms and ranches during the early spring, and are then trucked or traileed, with their calves, to the planning unit for the



SOURCE: THREE CORNERS PLANNING DOCUMENTS



SOURCE:
PHILLIP E. FLORES ASSOCIATES, INC
LANDSCAPE ARCHITECTS
DENVER, COLORADO

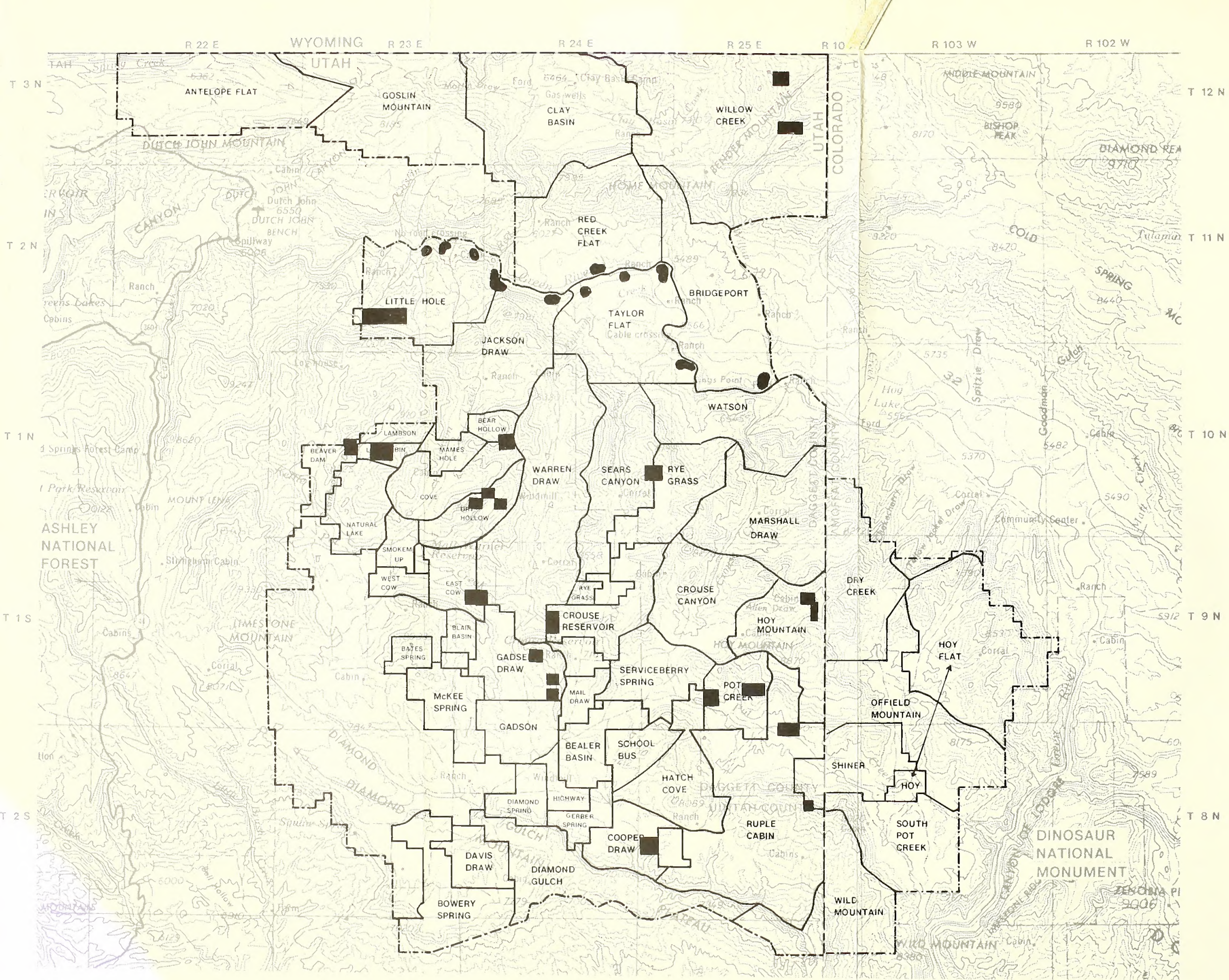
**VISUAL RESOURCE
MANAGEMENT CLASSES (DRAFT)**

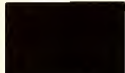
Table 2-20

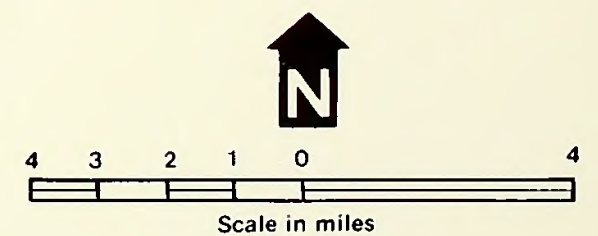
Recreational Use

	1976 BLM Visitor Days Three Corners Unit	Regional Visitor Days (Daggett & Uintah Counties)
Hunting		
Big game	14,213	107,466
Upland game	3,022	40,846
Fishing		
River	782	2,431
Lake	585	188,616
General Visitor Use		
Floatboating	5,439	55,102
All other recreation	<u>2,000</u>	<u>2,500,000</u>
Total	25,456	2,894,461

Source: Three Corners' Planning Documents.



 INVENTORIED RECREATION SITES



SOURCE: THREE CORNERS PLANNING DOCUMENTS

INVENTORIED RECREATION SITES

FIGURE 2-15

TABLE 2-21

Livestock Grazing Use

Proposed Action Sub-component and Allotment	Number of Livestock Operators	Grazing Preference (AUMs)	Approximate Number and Class of Livestock	Season of Use	Percent of Total Forage Furnished by Public Lands in Allotment	Percent of the Total Livestock Operation Dependant on ^a Public Lands
<u>CONTINUATION OF EXISTING MANAGEMENT</u>	30	5,895	1,995 cow-calf 495 yearlings 10,055 sheep			
<u>No Livestock Grazing</u>						
Rye Grass	0	0	0	0	0	0
<u>Continue Allotment-Wide Grazing</u>						
<u>Spring (April and May only)</u>	1	139	84 cow-calf			
Bridgeport	1	139	84 cow-calf	4/11-5/30	100	5
Taylor Flat-Watson	b	0	b	4/1-5/30	100	0
<u>Spring and Fall (Begin in May)</u>	3	695	7,365 sheep			
Bowery Spring	1	135	1,484 sheep	5/1-6/30, 9/16-10/31	13	8
Gadson Draw-Gerber Spring	c	213	1,902 sheep	5/1-6/30, 9/16-10/31	16	c
Highway	c	57	302 sheep	5/1-6/30, 9/16-10/31	27	c
McKee Spring	c	176	1,257 sheep	5/1-6/30, 9/16-10/31	20	c
Natural Lake	1	100	2,400 sheep	5/1-6/30, 9/1-11/5	100	2
Smokem-up	1	14	20 sheep	5/1-6/30, 9/16-10/30	5	1
<u>Spring-Summer-Fall (Begin in May or June)</u>	6	437	2,690 sheep 60 yearlings 193 cow-calf			
Bates Spring	1	55	645 sheep	5/11-11/10	7	3
Beaver Dam	1	34	2,045 sheep	5/6-7/5	5	2
Blair Basin	1	15	60 yearlings	6/1-10/15	5	2
East Cow	1 ^d	50	76 cow-calf	6/1-10/31	13	1
Log Cabin	e	58	d	5/1-6/30 9/1-11/15	5	d
Mail Draw	1	85	42 cow-calf	5/16-10/31	37	5
Mame's Hole-Bear Hollow	1	140	75 cow-calf	5/10-10/26	38	13
<u>Spring-Summer (Begin in June)</u>	1	274	435 yearlings			
Cove	1	6	170 yearlings	6/1-9/15	2	6
West Cow	f	268	265 yearlings	6/1-9/15	37	e

DESCRIPTION OF THE ENVIRONMENT

TABLE 2-21 (continued)

Proposed Action Sub-component and Allotment	Number of Livestock Operators	Grazing Preference (AUMs)	Approximate Number and Class of Livestock	Season of Use	Percent of Total Forage Furnished by Public Lands in Allotment	Percent of the Total Livestock Operation Dependant on Public Lands ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u> (continued)						
<u>Continue Existing Improved Management</u>						
<u>Rest Rotation</u>	1	552	175 cow-calf			
Hoy Mountain (Spring, Summer, Fall Grazing)	1 ^g	552	175 cow-calf	5/16-10/31	57	19
Red Creek (Spring Grazing)	b	0	b	4/6-6/5	100	0
<u>Deferred Rotation</u>	14	3,895	1,048 cow-calf			
Dry Creek-South Pot Creek- Wild Mountain (Spring, Summer, Fall Grazing)	1 ^h	1,446	398 cow-calf	5/6-10/28	72	23
Ruple Cabin (Spring, Summer Grazing)	13	2,449	650 cow-calf	5/16-10/15	74	17
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>	19	9,909	2,081 cow-calf 993 yearlings 7,023 sheep			
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>	17	7,873	2,081 cow-calf 993 yearlings			
Clay Basin-Antelope Flat- Goslin Mountain	2	2,905	50 cow-calf 500 cow-calf	10/1-5/30 4/6-11/30	85	27
Gadson	1	60	103 cow-calf	5/10-10/31	10	5
Hatch Cove	1	281	70 cow-calf	5/16-10/31	73	25
Hoy Flat	1	315	117 cow-calf	5/11-10/31	47	21
Jackson Draw-Crouse Canyon- Dry Hollow	1	980	300 cow-calf 200 yearlings	5/10-10/27	35	8
Little Hole	1	330	65 cow-calf	5/16-10/15	100	22
Offield Mountain	1	255	117 cow-calf	5/11-10/31	38	18
Pot Creek	1	107	125 cow-calf	5/18-10/17	17	7
School Bus	1	180	50 cow-calf	5/16-10/15	35	23
Sears Canyon-Marshall Draw	1	561	275 cow-calf	5/16-10/15	34	15
Serviceberry Spring	1	113	108 cow-calf	5/16-10/31	19	5
Shiner	1	177	200 cow-calf	5/16-10/25	16	7
Warren Draw	1	375	200 yearlings	6/1-10/31	35	38
Willow Creek	3 ⁱ	1,234	593 yearlings	5/16-9/30	66	7

TABLE 2-21 (concluded)

Proposed Action Sub-component and Allotment	Number of Livestock Operators	Grazing Preference (AUMs)	Approximate Number and Class of Livestock	Season of Use	Percent of Total Forage Furnished by Public Lands in Allotment	Percent of the Total Livestock Operation Dependant on Public Lands ^a
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u> (continued)						
Spring and Fall, With Periodic Spring Deferment	2	2,036	7,023 sheep			
Bealer Basin-Diamond Gulch- Diamond Spring	c	1,120	3,455 sheep	5/1-6/30 9/16-11/30	36	c
Cooper Draw	1	344	568 sheep	5/1-6/30 9/6-11/15	78	9
Davis Draw-Crouse Reservoir- Lambson	1	572	3,000 sheep	5/6-7/5 9/1-11/5	22	7
TOTAL	45	15,901	3,580 cow-calf 1,488 yearlings 17,078 sheep			

^aThe percentage of the operator's entire livestock operation that is dependant upon forage provided on planning unit public lands.

^bThere are no specified livestock operators on these allotments. Livestock use is on a temporary nonrenewable basis. Livestock generally allowed is 1,000 AUMs annually with 500 cattle on Taylor Flat-Watson and 672 AUMs and 336 Cattle on Red Creek.

^cThe livestock operator using the Bowery Spring Allotment also uses these allotments. Quantities are included in the entries for Bowery Spring Allotment.

^dThere are two livestock operators using the East Cow Allotment as one livestock operation.

^eThe livestock operator using the Beaver Dam Allotment also uses this allotment. Quantities are included in the entries for the Beaver Dam Allotment.

^fThe livestock operator using the Cove Allotment also uses this allotment. Quantities are included in the entries for the Cove Allotment.

^gThere are two livestock operators using the Hoy Mountain Allotment as one livestock operation.

^hThere are three livestock operators using the Dry Creek-South Pot Creek-Wild Mountain Allotment. Two of these operators have combined their operation into one and the other operator also grazes on the Cove and West Cow allotments.

ⁱThere are four livestock operators using the Willow Creek Allotment, but one operator is already shown on the Bridgeport Allotment.

grazing season (indicated on Table 2-20). After grazing on the planning unit, most cow-calf operators return their livestock to private lands in the Uinta Basin where they are pastured or fed until they return to the planning unit in the spring.

Yearling cattle are fed throughout the winter on private lands and then taken to the planning unit for the summer. These yearlings are then sold in the fall as feeder cattle. Yearling cattle operators generally try to acquire enough weaner cattle (cattle about 6-7 months of age) in the fall to make full use of their summer ranges in the planning unit. If not enough yearlings are available, operators graze fewer cattle on the planning unit.

Large sheep operations spend most of the year grazing on public rangelands within the Vernal District. Sheep herds are moved to the planning unit on May 1 and remain until June 30. The ewes usually give birth during this period. In July, sheep are moved to adjacent Ashley National Forest land. In mid September, the sheep are moved back to the planning unit and remain until the end of October or first part of November. The sheep are then moved to the desert winter ranges until the following spring.

Smaller sheep operations generally spend the entire summer on the planning unit. These sheep herds are managed in much the same manner as cow-calf operations. The ewes give birth in early spring on private land, are moved to the planning unit for the summer, and return to private farms and ranches in the fall.

Types of Management

Public lands may provide as little as 2 percent or as much as 100 percent of the total forage on an allotment while the balance is provided by private or state lands. Because many allotments receive only a small amount of forage from public lands, BLM has used allotment-wide management since the allotments were established. Livestock distribution has been a major problem because the terrain consists of valleys intersected by steep ridges with most water available only in the valleys. Heavy grazing occurs in the valleys, and hillsides are only lightly grazed. Most of the public land in the planning unit is on the hillsides and ridges.

Cattle, on allotments under allotment-wide grazing, graze with little control on their movements. Operators generally place salt on ridges and do some range riding to move their cattle into areas that they might not otherwise graze. Many of these allotments are not subdivided (cross-fenced) into pastures; however some are and the operators rotate their pastures using their own types of deferred grazing systems.

Sheep, on allotments under allotment-wide grazing, are herded and generally use all parts of the allotments. These allotments are generally not cross-fenced since the sheep are moved about on the allotment by the herder.

Allotments presently under improved rest rotation management, have been cross-fenced into three or more pastures. Cattle are moved from one pasture to another in a scheduled sequence and one pasture in the allotment is rested from grazing an entire year. The year prior to its being rested, grazing is deferred on the pasture until the key forage species produce seed. The pasture is then grazed (trampled) to help implant the seed.

Under deferred grazing systems, grazing is deferred on at least one pasture until after key forage species have produced seed. The pasture is then grazed (trampled) to help implant the seed. The pasture is again deferred the following year to allow seedlings to become established. No pastures receive total rest from grazing for an entire year.

On allotments under improved management, the operators also place salt on ridges, away from water, to encourage cattle to use less accessible areas. Some range riding takes place to move cattle into these areas. Because the allotments are cross-fenced into pastures, however, the cattle generally move onto all grazable areas of the pasture without the encouragement of a rider.

Grazing is somewhat more evenly distributed on sheep allotments because sheep can be herded into steep, rough terrain. In yearling cattle operations grazing is more even because yearling cattle are more active than cows, will graze farther from water, and tend to use steeper areas.

Production Characteristics

In cow-calf operations, calves are generally born during March and April on private farms. Calves weigh between 120 to 200 pounds when they are taken to the summer ranges. Cattle are moved off the summer ranges at the end of October and calves are weaned and sold. Calves weigh between 350 to 430 pounds at weaning.

In a few yearling cattle operations, weaner steers are bought in the fall and fed through the winter. Steers weigh between 500 and 600 pounds when they are moved to the planning unit and weigh between 750 and 900 pounds when they are moved from the planning unit. Most steers remain on the allotments for 5 1/2 months (165 days) which translates into a weight gain of between 1.5 to 2 pounds per day.

Sheep operations generally start lambing around May 5 and continue through May 30. The lambs are generally cut out of the herd and sold when the sheep come off Diamond Mountain in the fall. Lambs weigh between 75 to 85 pounds at this time.

c. Transportation Network

Utah Route 260 enters and crosses the planning unit through Antelope Flat and continues to Rock Springs, Wyoming. Colorado Route 318 enters at the Browns Park area, but is unpaved on the planning unit. The Diamond Mountain County Road enters the southeast corner of the unit, but is also unpaved on the unit. An additional paved road leads to the Jones Hole National Fish Hatchery, but is not paved its entire length (see Figure 1-2).

Dirt and gravel roads provide access, but are sometimes hazardous in wet or cold weather. Public access is sometime denied because some of these roads are on private land and land owners may lock their gates. Landowners provide a key to the BLM so that administrative access to BLM lands is provided.

d. Special Designations

(1) Wilderness

BLM's Wilderness Review officially began within the planning unit in December, 1978. Appendix II-9 summarizes the process. The initial step required in the review process--the identification of wilderness inventory units (roadless areas of 5,000 acres or more bounded by a road or non-public lands)--has been completed. Figure 2-16 shows the 11 identified inventory units, which contain approximately 128,000 total acres and encompass all or part of 25 allotments. It has not yet been determined if any of these inventory units has wilderness character.

(2) Wild and Scenic Rivers

The National Park Service is presently studying the Green River from the base of Flaming Gorge Dam through Browns Park for possible Wild and Scenic River designation. No alterations will be permitted of its free-flowing nature or scenic quality until a decision is made.

(3) Outstanding Natural Areas

Crouse Canyon is being considered by the BLM for designation as an Outstanding Natural Area (see Figure 2-16).

13. Land Use Plans, Controls, and Constraints

Local Government

The Three Corners Planning Unit lies in parts of Uintah and Daggett counties, Utah, and Moffat County, Colorado. All three counties currently have zoning ordinances (Uintah County, 1971; Daggett County, 1973; and Moffat County, 1978).

Those portions of the three counties within the planning unit are zoned as follows:

Uintah County:	Mining and Grazing Recreation, Forestry, and Mining
Daggett County:	Multiple Use Agriculture
Moffat County:	Agricultural

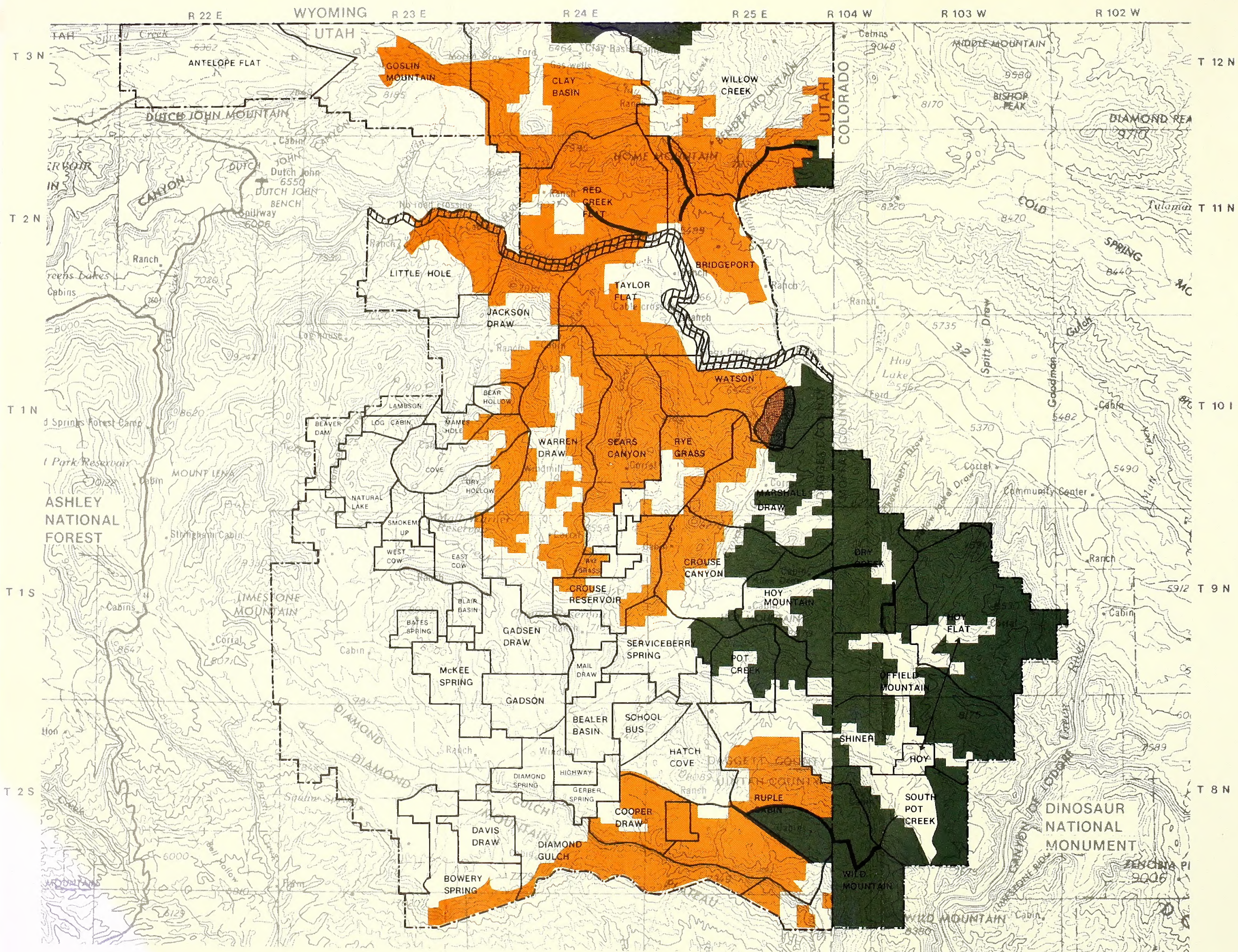
14. Socioeconomic Conditions

Data pertaining to Daggett and Uintah counties in Utah has been used for socioeconomic analysis. There are no communities or public supply centers in the planning unit. The Colorado portion of the planning unit is used by operators residing in Uintah County, Utah.

Population

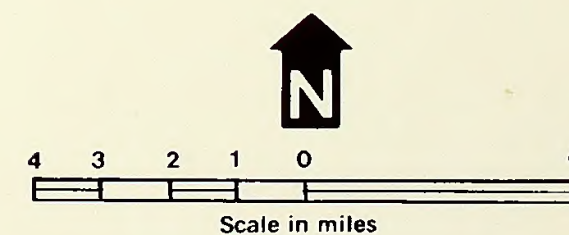
During the period 1960 to 1970, Daggett County experienced slightly less than a 4 percent decrease in population. Similarly, during the first 3 years of the 70's, Daggett County, and particularly Manila (the county seat), experienced approximately 3 percent decrease in population. The County had an estimated 1977 population of 800 people and has a population density of 1.0 per square mile. There are no urban areas (as classified by the U.S. Census) in Daggett County. Most of the Daggett County population lives near Manila, Utah.

Uintah County, has experienced fairly significant growth from migration since 1970 and has increased in population by about 41 percent since then. Population increases are primarily associated with current energy exploration and development. Uintah County had an estimated 1977 population of 17,900



LEGEND

- 
WILDERNESS INVENTORY UNITS
 (Recommended for Intense Inventory)
 April 1, 1979
- 
WILDERNESS INVENTORY UNITS
 (Recommended as Obviously and
 Clearly Lacking Wilderness Character)
 April 1, 1979
- 
OUTSTANDING NATURAL AREA
- 
WILD AND SCENIC RIVER



AREAS WITH POTENTIAL FOR SPECIAL DESIGNATION

FIGURE 2-16

residents. Approximately 31 percent of these residents live in Vernal. There is a current population density of approximately three persons per square mile in the county. Table 2-22 shows changes in population in the two counties and the State of Utah.

Seven families, about 25 people, live at scattered points within the boundaries of the planning unit. The total population of the two Utah counties in which the planning unit is found is 19,100.

b. Employment

In 1976, 307 people were employed in Daggett County, of which 47 were employed in agriculture. Total farm employment has increased in the county since 1971 when 45 were employed in agriculture. The relative importance of agricultural employment, however, has remained essentially constant with 15.5 percent employed in 1971 and 15.3 percent employed in 1976.

Uintah County employment in 1976 was 6,620 and 619 workers (9.3 percent) were employed in agriculture. Unlike Daggett County, Uintah has shown a decline in the relative importance of agricultural employment since 1971, when 726 people (14.7 percent) were employed in agriculture (BEA, 1978).

Unemployment within Daggett County has been high since completion of Flaming Gorge Reservoir. Construction, oil, and gas activities have increased since 1975 and lowered the unemployment rate somewhat. Uintah County unemployment has fluctuated as a function of oil and gas activity.

c. Income

The per capita income in the two counties is substantially below the state and national average. Daggett County was 33 percent below the state average and 47 percent below the national average in 1976, while Uintah County was 21 percent below the state average and 31 percent below the national average. Table 2-23 shows the counties' per capita income.

Total 1976 personal income in Daggett County was \$2,787,000, of which \$436,000 (about 15.7 percent) was derived from agricultural sources. In the same year, Uintah County had a total personal income of \$59,456,000 of which \$641,000 (about 1.1 percent) was from agriculture. In 1976, Utah had a total personal income of \$5,244,395,000, of which \$83,542,000 (about 1.6 percent) was agricultural (BEA, 1978).

Ranch Operation

Based upon available data, ranch operations fall fairly reliably into three generalized scales: small, medium, and large. The assumption, inherent in this approach, is that individual operations within any one scale are sufficiently represented so that any conclusions applied to the entire scale would also apply to the majority of its individual operations.

"Ranch budget sheets" were developed for each scale. The budget sheets displayed in Appendix II-10, show the revenues and expenses for the "average" ranch within each scale and provide baseline data for subsequent calculations. An implicit assumption is that livestock prices and ranching costs can be held constant. Of course, costs cannot be held constant. This problem, however, can be ameliorated by applying the analysis to long-term price and cost trends to make projections based upon changing market conditions. For example, the base for the budgets which follow is 1977, 1979 livestock prices are known to be nearly 3 times higher.

TABLE 2-22

Population Changes in Daggett and Uintah Counties

	Population by Area		
	Daggett Co.	Uintah Co.	Utah State
<u>Year</u>			
1960	1,164	11,583	890,627
1970	666	12,684	1,059,273
1975			1,205,900
1977 est.	800	17,900	
<u>Average Annual Growth (Percent)</u>			
1960-1970	-5.42	+0.91	+1.75
1970-1975			+2.3
1970-1977	+2.7	+5.0	

Source: U.S. Bureau of Census, 1975. Current Population Report.
 Series P-25, No. 589. Washington D.C.
 Utah, Bureau of Economic and Business Research, 1977.
 County Economic Facts, Salt Lake City, Utah.

TABLE 2-23

Daggett, Uintah County and State of Utah
Per Capita Income

		Per Capita Income in Dollars By Year						
		1970	1971	1972	1973	1974	1975	1976
Daggett								
Co.	2,455	2,932	2,801	3,156	3,311	3,273	4,011	
Uintah								
Co.	2,447	2,623	3,196	3,497	4,122	4,257	4,411	
Utah								
State	3,169	3,427	3,719	4,100	4,462	4,844	5,350	

Source: Bureau of Economic Analysis (BEA), July, 1978;
Regional Economics Information System.

Small Scale Operations

Of the 45 licensed permittees in the Three Corners Planning Unit, 24 are classed in the small scale category. These ranches have an estimated average of 81 animal units and range between 25 and 100 units. Forage requirements average 966 AUMs annually and public land administered by BLM provide about 200 AUMs or 17 percent. The small operator, however, obtains 38 percent of his forage from public land during May through October.

Table 2-24 is a summary of a typical small scale ranch budget sheet. The average gross income received is estimated at \$8,885.00 with \$7,735 of expenses. The operator net ranch income is \$1,150.00 annually. Typically, he will supplement this income with an off-ranch job.

Medium Scale Operations

Of the Planning Unit ranching operations, 14 are medium scale ranchers. Ranchers in the medium scale run from 100 to 500 animal units, but average around 224 units. This is equivalent to an average of 2,693 AUMs annually. The medium scale ranch depends on BLM land for approximately 15 percent of its total AUMs, but 44 percent of its AUMs are provided by public land during the months of May through October.

Table 2-25 is a summary of a medium scale typical budget sheet. These operations have an average gross income of about \$39,005.98, and a net annual loss of \$6,914.02 or 2.57 per AUM. Losses obviously cannot be sustained over the long term. They do, however, reflect a depressed market in which the expenses of bringing livestock to market have exceeded prices received. Also the medium scale operator is severely constrained from diversifying by the limited amount of capital available and property with which to diversify.

Large Scale Operations

There are approximately seven large operators in the planning unit. The large scale rancher runs from 500 animal units upward, the average is approximately 705 animal units, about 8,457 AUMs. Approximately 11 percent of these AUMs are obtained from public land within the planning unit. Between May and October, the large scale operators typically obtain 35 percent of their forage needs from the planning unit.

Table 2-26 shows the large scale typical ranch budget sheet. Gross sales are approximately \$131,543.83 and expenses are \$63,016.00 leaving a net income of \$68,527 or \$7.72 per AUM. Large operators also have additional income sources and are the most capable of diversifying to meet changing market conditions.

Economic Summary

There are two basic categories of economic concerns to local ranchers: (1) the annual returns to their investments of land, labor, and capital; and (2) the long term capital value of the ranch property. Using data from Tables 2-24, 25, and 26, the present estimated net income to livestock operators is 329,832.00.

Annual Returns

The factors which affect a ranch's potential annual returns are: (1) price per unit weight at sale; (2) weight per animal; (3) number of animals;

TABLE 2-24

Small Scale Ranch Budget Sheet Summary

	Total Ranch Unit	Each Animal Unit	Each AUM
<u>Gross Income</u>			
Ranch Income from 81 animal units (966 AUMs)	\$ 8,885.00	\$109.69	9.20
<u>Expenses</u>			
Fixed Costs	4,998.00	61.70	5.14
Variable costs	2,737.00	33.79	2.82
<u>Net Income</u>	1,150.00	14.20	1.19

Source: Appendix II-10.

TABLE 2-25

Medium Scale Ranch Budget Sheet Summary

	Total Ranch Unit	Each Animal Unit	Each AUM
<u>Gross Income</u>			
Ranch Income from 224 animal units (2,688 AUMs)	\$39,006.00	174.13	14.51
<u>Expenses</u>			
Fixed costs	23,816.00	106.32	8.86
Variable costs	22,104.00	98.84	8.24
<u>Net Income</u>	-6,914.02	-30.87	-2.57

Source: Appendix II-10.

TABLE 2-26

Large Scale Ranch Budget Sheet Summary

	Total Ranch Unit	Each Animal Unit	Each AUM
<u>Gross Income</u>			
Ranch Income from 705 animal units (8,457 AUMs)	\$120,060.00	170.30	14.20
<u>Expenses</u>			
Fixed costs	48,820.00	69.25	5.77
Variable costs	14,196.00	20.14	1.68
<u>Net Income</u>	57,044.00	80.91	6.74

Source: Appendix II-10.

and (4) the costs of raising the animal to marketability. BLM management has the potential of affecting all but the price per unit weight.

Capital Values

Changes in permit sizes can affect the overall capital value of a ranch property. Lending institutions often recognize BLM permits as part of a ranch's collateral in securing loans (commonly referred to as the capitalized value of the permit). Any change in a permit has the potential of affecting the ranch's ability to secure a loan and, consequently, its overall capital value.

d. Community Services

The Ashley Valley area supplies nearly all the goods and services for the planning unit. Uintah County has five elementary schools (2,554 students), two junior high schools (1,195 students), and one high school and shares with Duchesne one high school. The high school in Vernal has 833 students. Daggett County has one elementary school (105 students) and one combination junior high and high school (78 students). The schools in both counties are able to meet the needs of the population. There is one 31 bed hospital in Vernal which is being replaced and is adequate for medical needs except major medical crises (Edmonds, 1978).

e. Recreation Income: Big Game Hunting

It is estimated that 14,213 deer and elk hunter days on the planning unit produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County area. Based on the present estimated value of hunter days of \$49.94 (BLM, 1978).

f. Social-Attitudes

Most public land users live outside the planning unit and are primarily livestock operators in Daggett or Uintah counties. Most other users are recreationists who boat on Flaming Gorge Reservoir, river run, hunt, fish, hike, or camp.

Some residents of Daggett and Uintah counties have strong historical ties to cattle and sheep operations which have grazed in the same section of the planning unit for several decades. In many cases, an operation has remained with one family for two or three generations. Many operators are highly interested in the environment in which their livestock graze.

There are strong feelings of powerlessness among some planning unit users. They feel, for example, that the "Gorge" (Flaming Gorge Reservoir) came upon "their" land without their knowledge or understanding of its consequences. Most of Daggett and Uintah county lands are controlled by federal and state agencies--the Forest Service, BLM, Bureau of Reclamation, Fish and Wildlife Service, National Park Service, Utah Division of Wildlife Resources, and Utah State Land Division. Local residents feel that their interests have not been, and probably will not be, considered seriously in further land use decisions.

In 1975 the people of the Vernal area were interviewed concerning their attitudes toward their community (Reed Geertsen, et.al., 1975). Of these interviewed, 79 percent said their community was a good or excellent place to

live; 64 percent felt they were fully accepted as a part of the community. The effectiveness of local government was rated satisfactory or as a community strength by 53 percent of those interviewed.

Access to the out-of-doors was highly valued by residents--98 percent stated this was satisfactory or a strength of their community. When the people were asked if the community was a good place to raise a family, 49 percent said it was a strength and 38 percent thought it was satisfactory.

Asked if the community provided opportunities to earn a liveable income, nearly one-fourth (22 percent) said it needs improvement. Nearly half (43 percent) thought it was satisfactory, and 33 percent said it was a strength.

C. FUTURE ENVIRONMENT WITHOUT THE PROPOSED ACTION

Introduction

This section summarizes the probable future environment of the planning unit if the proposal were not implemented. Four major activities are expected to be leading factors in change on the planning unit. They are: (1) proposed improved access by states and counties, (2) increasing big game populations, (3) more people using the area, and (4) the need or desire for summer home sites. The proposed Red Creek Flat and Jones Hole-Diamond Mountain roads would greatly improve access to the planning unit. Recreational developments within the Flaming Gorge National Recreation area have attracted people in increasing numbers. And as subdivisions near Flaming Gorge have been filled, more locations on Diamond Mountain Plateau have been sought. This trend is expected to accelerate, particularly with improved access. The Browns Park Waterfowl Management Area and continuation of the current upward trend in big game numbers could attract even more people to the area. Changes are not expected in air quality, climate, topography, and geologic setting. (For more information on details of the future with no action, see Alternative C.)

Soils

Annual soil loss estimates by Bureau of Reclamation and BLM watershed studies indicate that there will be very little change in the productive capacity of the area in the future. Erosion has been declining in recent years.

Vegetation

The amount of sagebrush on the cattle allotments will increase at a gradual rate. The increase will be on valley bottoms and around watering areas. Side hills and ridges will probably maintain their present vegetative composition.

Sagebrush on cattle allotments, under improved management will also increase, but will increase at a slower rate than on areas under allotment-wide management. Sagebrush will, however, increase more uniformly throughout these allotments because grazing is more evenly distributed.

The vegetation composition on sheep allotments will remain relatively stable.

DESCRIPTION OF THE ENVIRONMENT

Water Resources

It is expected that there will be no change to the quantity of water in the area. The quality of water will likely decline with increased big game numbers and recreation visitor use of the area.

Animal Life

The proposed Browns Park Road through the Browns Park-Antelope Flat area would cause significant increases in visitors to the area. Loss of big game habitat would result from building summer homes. Some animals would be lost through highway mortality. Poaching of game animals will increase as will molesting of species during the reproduction period and wintering seasons. Indiscriminate shooting of non-game species would also increase. The cougar, which is very secretive and will tolerate only limited amounts of human activity, could be extirpated from the planning unit. Increased visitor use could cause serious problems in Canada goose production at the Browns Park Waterfowl Management Area.

Increased fishing pressure may require the planting of "catchable size" fish in order to maintain fisherman success.

Cultural Resources

Cultural resources will continue to be subject to vandalism and weathering. Vandalism will increase as recreational use of the area increases.

Paleontological

Increased visitor use of the paleontological resource will result in increasing destruction and collection of fossils.

Visual Resources

All future development, including the proposed Browns Park Road, cabin sites on Diamond Mountain, inventoried recreation sites, transmission lines, pipelines and gas fields in Clay Basin, will alter and in some cases dominate the natural landscape in localized areas. Much of the unit, however, will continue to appear natural. Public lands under the jurisdiction of the BLM will be managed within VRM guidelines.

Land Use

Recreation Resources

A 5 percent annual increase in recreation use is projected for Daggett and Uintah Counties (Three Corners PAA). If the Browns Park road is completed, improved access would accelerate the projected increase within the planning unit. River use may increase as much as 40 percent annually (Three Corners PAA).

Hunting, fishing, and floatboating are expected to continue as the major recreational uses. Increased use pressures would result in less hunter and fisherman success, and a reduction in quality of the recreational experience.

As demand increases and the availability of funds allow, BLM will develop many of the inventoried recreation sites within the planning unit.

Off road vehicle use is expected to continue to be associated largely with hunting.

Livestock Grazing

Because of the increased amounts of sagebrush on cattle allotments and the apparent increasing demand for lamb and wool products, some cattle operators may want to change their operations to sheep. This may be encouraged as sagebrush invades cattle ranges.

As the subdivision for summer homes increases on private land and recreation use increases, livestock grazing would probably decrease.

Special Designations

Identified wilderness inventory units will be inventoried for wilderness character as defined in the Wilderness Act of 1964. Units determined not to possess wilderness character will be eliminated from further wilderness review, and will no longer be subject to interim management protection. Units determined to have wilderness character will be identified as Wilderness Study Areas (WSAs). Should any WSAs be identified, they will be subjected to additional review criteria, and would be recommended as suitable or non-suitable for wilderness designation. As a result of the wilderness review, it is possible that a portion of the unit could be designated as wilderness by Congress.

As a result of the National Park Service study, it is possible that the portion of the Green River that flows through the planning unit could be designated as a Wild and Scenic River.

As a result of the BLM study, it is possible that Crouse Canyon could be designated as an Outstanding Natural Area.

Economic Conditions

The influence of ranching on the local economy is declining. This is resulting from economic factors within the ranching industry (e.g., increasing operating costs, market uncertainty, inflation of property values, etc.), increased access, and recreational use of the area. It is becoming more attractive for less efficient ranches to sell base property for subdivision or to be incorporated into larger, more efficient ranching operations. While this trend will probably decrease the number of ranch operations somewhat, the majority of the operators can be expected to remain in the ranching business on at least a part-time basis.

Recreational use in the area will increase at a rate of 5 percent annually. If this is applied to the \$473,198 generated by big game hunting in the local economy, it would become \$525,176 by 1985 and \$565,764 by 1990.

Social-Cultural Values

The social environs would continue to place a high value on agriculture and livestock grazing. The trend to change from sheep to cattle would continue, but the total proportion of livestock would not increase. In fact livestock numbers may decline if private lands are sold for summer home developments.

It is anticipated that the people's economic dependance would continue to be dominantly tied to non-agricultural employment, and the agricultural employment numbers would slowly decline.

DESCRIPTION OF THE ENVIRONMENT

The people would continue to place a high value on individualism and close community relations. The people would still place a high value on the good hunting of the area, and hunter access and trespass would be continuing problems.

THE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

CHAPTER 3 THE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A. INTRODUCTION

This chapter identifies probable environmental impacts of the proposed action. The analysis of probable impacts shows the expected magnitude, intensity, duration, and incidence. Short-term impacts are those lasting up to 20 years. Impacts expected to last 20 years or beyond are considered long-term. Impacts are traced from the proposed action to man and his environment. Discussions or impacts are based on detailed analysis and cause-effect documentation process described in Appendix III-1.

The most dominant direct impact from livestock grazing would occur on the vegetation resource. Changes in vegetation production, condition, trend, and potential would indirectly affect the other resources. Direct impacts would also occur, to a lesser extent, to other resources (such as soil compaction by livestock or visual effects of range developments).

Each resource is discussed in two parts: (1) a narrative which identified interrelationships among resources and cumulative impact conclusions for the particular resource and (2) a two column listing which provides the environmental impact details and analysis as related to the proposed action.

The reader may obtain an overall, or general, understanding of the impacts by reading only the narrative for each resource.

The impact discussion presented in this environmental statement does not cover all of the intricate aspects of the ecological conditions in the Three Corners Planning Unit. Rather, the statement highlights those portions of the analysis which are considered to be of primary interest to the public, to other agencies, and to resource decision-makers for the public lands involved. Significant impacts are those which 1) substantially affect the quality of the human environment, 2) are controversial or of high public concern, or 3) affect a legally protected species or resource.

Climate, air quality, topography, and geologic setting are not discussed because no significant impacts were identified.

IMPACT ON SOILS

Proposed grazing practices and developments were analyzed to determine the extent to which they would affect the soil resource in terms of sediment yield, erosion condition, soil salinity, and seeding suitability. (Seeding suitability also measures whether or not natural regrowth could be expected in sprayed or chained areas.)

Anticipated changes in vegetation ground cover, composition, and intensity of use are factors influencing impacts to soils. The soil resource itself is basic to vegetation productivity, water yield, and quality, and wildlife carrying capacity.

SOILS ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
---------------------------------	--

SEDIMENT YIELD

Existing improved management is proposed to continue on 39,538 acres of public land. Vegetation ground cover is expected to increase which would help improve watershed conditions.

Implementation of improved grazing management and periodic spring rest is proposed on 115,568 acres of public land. Predicted increased vegetation ground cover would help maintain or improve watershed conditions.

The proposed spraying of 1,260 acres of sagebrush with 2,4-D on Ruple Cabin and Hoy Mountain allotments and chaining of 400 acres of sagebrush in Davis Draw is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur on Ruple Cabin and Davis Draw allotments until the suppressed grass species could respond to the reduced competition from brush. The 480 acres proposed for treatment on Hoy Mountain Allotment would be a maintenance spraying and only a minimal decrease in protective ground cover would be expected.

The proposal to develop 13 springs, install 15 miles of pipeline, 6 storage tanks, 30 troughs, and construct 3 reservoirs would provide additional watering areas for livestock. Construction would temporarily expose bare soil on 29.2 acres.

Decrease in sediment yield would contribute to meeting the objective of maintaining or improving watershed condition, except in the short-term on sagebrush control areas and around range developments.

Sediment yield currently ranges between 0.1 and 0.5 acre-foot per square mile per year. Ground cover of vegetation is expected to change slightly. Sediment yield could decrease by a total of as much as 0.80 acre-foot annually--a reduction from 0.20 to 0.185 acre-feet per square mile on Red Creek and Hoy Mountain allotments, a reduction from 0.15 to 0.135 acre-foot per square mile per year on Ruple Cabin Allotment and a reduction from 0.14 to 0.13 acre-foot per square mile per year on Dry Creek-South Pot Creek-Wild Mountain Allotment (PSIAC, 1968; Branson, 1972). The changes would occur over the next 15 to 20 years.

Sediment yield currently ranges between 0.1 and 1.0 acre-foot per square mile per year. Ground cover of vegetation is expected to increase slightly which would lead to a reduction in sediment yield over the next 15 to 20 years by a total of 2.71 acre-feet annually from an average of 0.20 to 0.185 acre-foot per square mile per year (PSIAC, 1968; Branson, 1972). Seventeen allotments would be affected.

The 1,660 acres proposed for treatment are currently yielding sediment at a rate of 0.1 acre-foot per square mile per year. There would be a slight increase in soil loss (PSIAC, 1968) for 1 to 3 years until the former ground cover density returns on Ruple Cabin and Davis Draw allotments. The loss would be less on the sprayed area than on the chained area (Sturges, 1975). Sediment yield would not be expected to increase because of the proposed spraying on Hoy Mountain Allotment.

Current annual sediment yield varies between 0.1 and 1.0 acre-foot per square mile. Increased sediment yield from the 29.2 acres disturbed for installation of improvements would be 0.004 acre-foot (6.6 cubic yards) annually for 1 to 3 years (PSIAC, 1968).

SOILS ANALYSIS SECTION (concluded)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaEROSION CONDITION

The proposed spraying of 780 acres of sagebrush with 2,4-D on Ruple Cabin Allotment and chaining of 400 acres of sagebrush in Davis Draw is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur until the suppressed grass species could respond to the reduced competition from brush.

Maintaining the current erosion condition would contribute to meeting the objective to maintain or improve watershed condition.

The 1,180 acres proposed for treatment are currently in slight erosion condition. The erosion condition would increase slightly for 1 to 3 years until the former ground cover density returns. The impact would be less on the sprayed area of Ruple Cabin than on the chained area in Davis Draw (Sturges, 1975).

SOIL SALINITY

Improved grazing management and periodic rest during the growing season are proposed for the Clay Basin-Antelope Flat-Goslin Mountain Allotment. The proposal would increase cover of the allotment and would help improve current watershed conditions.

The proposal to construct 1 pipeline, 13 water troughs, and 1 storage tank on the Clay Basin-Antelope Flat-Goslin Mountain Allotment would result in removal of vegetation on a maximum of 10.56 acres of slightly saline soils.

Soils on 15,520 acres within this allotment are slightly saline. The expected increase of grass composition would increase ground cover and result in a slight decrease in salt laden sediment yield within 20 years.

The volume of salt laden sediments entering stream channels would increase slightly for 1 to 3 years. The exact amount of salinity is unknown, but the disturbed area amounts to only 0.0006 percent of the saline soils in the allotment. Salt laden sediment yield is not expected to increase more than 4.04 cubic yards annually (PSIAC, 1968).

SEEDING SUITABILITY

The proposal to spray 1,260 acres in two allotments with 2,4-D and chain 400 acres in one allotment would increase the amount of grass in the vegetation composition. The chaining would reduce dense stands of sagebrush and make forage available to livestock.

The suitability of soils for seeding in the areas proposed for sagebrush control would aid in meeting the objectives of improving or maintaining livestock forage and watershed condition.

Limitations are slight for vegetation manipulation on all areas proposed for treatment. The 480 acres proposed for treatment on Hoy Mountain would be a maintenance spraying with no reduction in ground cover anticipated (BLM, 1976). The two remaining areas in Ruple Cabin Allotment (780 acres) and in Davis Draw (400 acres) would probably be treated successfully, but a slight temporary reduction in ground cover is expected for 1 to 3 years (BLM, 1976).

Assessment

Because sediment yield is so small on the planning unit (0.1 and 0.5 acre-feet per square mile per year) and vegetation ground cover is expected to increase, it is expected that total sediment yield would be reduced by 3.51 acre-feet annually on 155,106 acres.

Current erosion conditions meet the objectives of maintaining or improving watershed conditions. The proposed spraying of 1,260 acres and chaining of 400 acres would not result in a measureable ground cover reduction. The proposal's effects are so slight, impacts cannot be quantified.

Conclusion

The proposed action would not significantly alter the soil resources of the unit, although there would be some slight increase in sedimentation.

IMPACT ON WATER RESOURCES

The analysis of the impacts caused by changes in grazing practices and related developments focuses on (1) water quantity and (2) water quality.

The analysis has indicated that the proposal would not markedly alter the quantity of water consumed by livestock in the planning unit, but proposed water developments would distribute the water supply more evenly. Livestock and wildlife would not compete with one another for available water due to the small consumptive use in comparison to the total annual yield.

WATER ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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WATER QUANTITY

Existing improved management is proposed to continue on Red Creek, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain, comprising 39,538 acres of public land. Improved grazing management and periodic rest is proposed on 17 allotments that comprise 115,568 acres of public land. The vegetation ground cover is expected to increase slightly and sediment yield to decrease slightly.

It is proposed to develop 13 springs, install 15 miles of pipeline, 6 storage tanks, 30 troughs, and construct 3 reservoirs to provide additional watering areas for livestock. The water for the proposed developments originates from springs and does not now flow off the planning unit.

The proposal to spray 1,260 acres in two allotments with 2,4-D and chain 400 acres in one allotment for an increase in the amount of grass in the vegetation composition would reduce dense stands of sagebrush and make forage available to livestock. Ground cover would be reduced temporarily on 1,180 acres proposed for treatment.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to change minimally, only a slight decrease in water yield would occur over the next 15 to 20 years (Branson, 1972). All 21 allotments in these proposal components would be affected.

Current consumptive water use on the planning unit is about 23 acre-feet annually. This amounts to 0.02 percent of the available water. Because the water proposed for use in the developments does not currently leave the planning unit, the developments would have no impact on total water yield.

The vegetation cover on 1,180 acres would decrease slightly and water yield would increase for 1 to 3 years. The exact amount of increased water yield is not known. Because only 1,180 acres are involved, the increase is expected to be minimal.

WATER QUALITY

Continued improved grazing management is proposed on Red Creek and Ruple Cabin allotments, comprising 20,558 acres of public land. The vegetation ground cover is expected to increase slightly.

Implementation of improved grazing management and periodic spring rest are proposed on 17 allotments that comprise 115,568 acres of public land. Vegetation ground cover is expected to increase slightly.

Construction of 3.5 miles of fence, to protect riparian areas, is proposed in Little Hole and Sears Canyon-Marshall Draw allotments along Davenport, Jackson, Crouse, and Sears Creek. Riparian vegetation would improve from fair to good. Watershed conditions would be maintained or improved.

Currently three streams flow through these two allotments. The sediment carried by these streams would be slightly reduced. The exact amount is not known (PSIAC, 1968; Branson, 1972). This reduction would occur gradually within 15 to 20 years.

The sediment load of 12 streams which flow through 10 of the 17 allotments would be slightly reduced gradually over a period of 15 to 20 years. The exact amount of reduction is not known (PSIAC, 1968; Branson, 1972).

Because riparian vegetation condition is expected to improve along 3.5 miles of stream, the levels of Orthophosphate would increase as a result of increased amounts of decaying vegetation (EPA, 1976). The exact amount of this increase is not known, but levels are currently high and at times exceed state standards. This change would take place gradually over 15 to 20 years.

Assessment

It is proposed to continue improved management on 39,538 acres, implement management on 115,568 acres of the planning unit, spray 1,260 acres, and chain 400 acres. Improvement in vegetation cover would be slight and can not be quantified. This proposal would result in a small, unmeasurable decrease in water yield and a small, unmeasurable improvement in water quality.

Conclusion

No measureable impacts of significance would occur.

IMPACT ON VEGETATION AND FORAGE

This section describes the anticipated impacts which the proposed action would have on vegetation in the planning unit. Impacts on vegetation are interrelated with animal life, watershed, visual resources, and livestock grazing in other sections of this statement.

Major impacts identified in this section include a change in plant composition from shrubby species to grass. Approximately 1,749 acres of vegetation could be disturbed during construction of 71 facilities (fences, reservoirs, springs, etc.), but vegetation would return to former conditions within 1 to 3 years because of the high productive potential found in the planning unit.

In this section, types and subtypes, composition and vegetation ground cover, key species, threatened and endangered species, forage production, forage condition, and trend in forage condition are used to derive the expected effects on vegetation production and condition.

The presentation is made in three parts: 1) proposed action, its impacts and areas affected, 2) assessment, 3) conclusions.

VEGETATION ANALYSIS SECTION

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaTYPES AND SUBTYPES
(including riparian vegetation and condition)

It is proposed to continue existing grazing management on 22 allotments (74,968 acres) and implement improved grazing management on 17 allotments (115,568 acres).

Existing Management would continue on 22 allotments (74,968 acres).

Improved management would be implemented on 17 allotments (115,568 acres).

The 23 acres of riparian vegetation in fair condition would be fenced to exclude livestock.

Objectives, identified for riparian vegetation, to maintain good condition and to improve fair condition to good condition would be met.

The following vegetation types are present in the planning unit:

Type	Acres
Sagebrush	80,816
Pinyon-juniper	80,795
Conifer	14,565
Grass	5,324
Mountain shrub	5,378
Broadleaf trees	1,908
Greasewood	999
Riparian	751
Total	190,536

There would be no changes in types or subtypes.

The 582 acres of riparian vegetation in good condition, on allotments proposed for the continuation of existing management would be maintained since management would not change from that which has been applied for 12 to 20 years.

These 17 allotments where allotment-wide grazing occurs contain 169 acres of riparian vegetation. One hundred and forty-six acres are in good condition and 23 acres are in fair condition. Of the 146 acres, 55 acres are accessible to livestock. Implementing improved grazing management with regular spring deferment should permit adequate new growth of cottonwood, birch, willows, and other riparian species and would maintain their present condition. Riparian vegetation in good condition is expected to remain in good condition.

Winegar (1977) found in eastern Oregon that the condition of riparian vegetation improved significantly by fencing to exclude livestock. It is expected that the 23 acres of fair condition riparian vegetation would improve to good condition by excluding livestock.

A total of 728 acres of riparian vegetation would be maintained in good condition and 23 acres in fair condition would be improved to good condition.

COMPOSITION AND VEGETATION GROUND COVER

No livestock grazing (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment (2,860 acres). Current use by wildlife, and their forage preference, would favor the growth of grass as opposed to shrubs. An increase of about 49 elk AUMs is proposed.

According to studies done in northern California (Heady, 1975) elimination of livestock from winter deer range resulted in a decrease of shrubs and an increase in grasses. A similar response would be expected on the north end of the 2,860 acre Rye Grass Allotment. Though elk make heavier use of grass than deer, it is not expected that an increase of 49 elk AUMs use during winter and summer would stop the increase in grasses throughout the allotments. The exact percent composition change is unknown, but it is not likely that big sagebrush which presently is 40 percent would become less than 20 percent of the vegetation composition. Vegetation ground cover is expected to increase above the present 25 percent. The magnitude of the increase would be unknown.

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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COMPOSITION AND VEGETATION GROUND COVER (continued)

Continuation of allotment-wide grazing, with use not to exceed 60 percent on key plant species, on 17 allotments (32,570 acres) would perpetuate the current use on desirable forage species during the critical periods for growth and reproduction.	These changes are expected because heavy deer use on shrubs reduces their vigor and allows grass to compete more vigorously for moisture and soil nutrients. When utilization of grass is reduced, allowing grass to increase, seedlings of some browse species (i.e., bitterbrush) often cannot establish successfully. Existing browse is utilized more and more intensively sometimes causing its reduction. On Bridgeport and Taylor Flat-Watson allotments, total vegetation ground cover would not change, but slight changes in composition are expected. Laycock (1967) found that continued use by livestock in spring favored sagebrush and decreased grass in northeastern Idaho. A similar response would be expected in the Taylor Flat-Watson Allotment, but big sagebrush would be expected to remain between 20 and 30 percent of the composition. On the Bridgeport Allotment, however, because of the heavy stand of big sagebrush (55 percent) and low grass composition (16 percent), it is expected that composition of desirable grass would not reach 60 percent. On 15 allotments (all but Taylor Flat-Watson and Bridgeport) where use of desirable forage species during the critical periods for growth and reproduction would continue, no change is expected in vegetation ground cover and composition. The present management has been applied for 12 to 20 years and the mix of plants in the composition is not expected to change because of the proposal.
Continue improved management on Hoy Mountain (3,550 acres).	Composition of big sagebrush would remain less than 20 percent on Hoy Mountain.
Implementation of improved grazing management (on 17 allotments) (115,568 acres) would provide periodic rest for desirable vegetation during the growing season.	Morris (1934) found from studies in Colorado that grasses increased through deferred rotation grazing compared to continuously grazed allotments. A similar response would be expected where deferred rotation grazing is proposed. Regular rest would allow forage species an uninterrupted critical growth and reproduction period. This situation does not exist on the 17 allotments with allotment-wide grazing. This would favor growth of desirable vegetation and vegetation ground cover would increase to, or remain greater than, 25 percent on all allotments. Composition of desirable vegetation would reach proposed levels, except on one allotment where composition of big sagebrush or other desirable shrubs would remain less than 20 percent. High percent of grass composition and low stock rates favor continued high levels of grass production which precludes establishment of browse seedlings.
Sagebrush control on Hoy Mountain, Ruple Cabin, and Davis Draw-Crouse Reservoir, and Lambson is proposed on 1,660 acres. Helicopter spraying with 2,4-D on 1,260 acres of Hoy Mountain and Ruple Cabin and Chaining of 400 acres on David Draw are proposed.	The application rate would be two pounds of 2,4-D acid equivalent per acre. Application would be carefully supervised to assure that all precautions for 2,4-D use were being observed. Successful spraying which kills most of the big sagebrush would create a situation in which other desirable and key forage species can increase and become more productive. Where sagebrush exists in dense stands, it tends to tie up most available light, water, and nutrients. When the sagebrush is removed or reduced, it frees these necessities for plant growth and allows other plants to establish, grow, and reproduce. Plant species diversity would increase causing a change in vegetation composition.

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaCOMPOSITION AND VEGETATION GROUND COVER (continued)

In summary, composition and vegetation ground cover objectives would be met on 25 allotments (146,286 acres, 77 percent of the planning unit). The following listing shows which allotments in the planning unit would not meet vegetation ground cover and composition objectives after the proposal is implemented.

The composition of desirable plants would be less than 60 percent on 10,458 acres on the following allotments:

Bridgeport
Beaver Dam
Log Cabin
Mames Hole-Bear Hollow

Big sagebrush would be maintained at greater than desirable composition levels (greater than 30 percent) on 12,638 acres on the following allotments:

Bridgeport
Bowery Spring
Highway
McKee Spring
Smokem-up
Bates Spring
Mames Hole-Bear Hollow

Shrub composition (including big sagebrush) would be less than desirable levels (less than 20 percent) on 10,480 acres of the following allotments:

Hoy Mountain
Offield Mountain

Vegetation ground cover would be maintained or decline to less than desirable levels (greater than 25 percent) on 28,440 acres on the following allotments:

Bridgeport	Bates Spring
Taylor Flat-Watson	Blair Basin
Gadson Draw-Gerber Spring	East Cow
Highway	Mames Hole-Bear Hollow
Natural Lake	Cove
Smokem-up	West Cow

KEY SPECIES

All components of the proposal would affect key species.

Eleven key species from three families (Poaceae, Asteraceae, and Rosaceae) have been identified for the Three Corners Planning Unit. Seven key species are grasses: bluebunch wheatgrass, Columbia needlegrass, crested wheatgrass, Indian ricegrass, Letterman needlegrass, needle-and-thread grass, and western wheatgrass. Four key species are shrubs: antelope bitterbrush, big sagebrush, black sagebrush, and true mountain mahogany.

Probable response of key species to existing and proposed grazing management are:

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area	
<u>KEY SPECIES</u> (continued)		
	<u>Grass</u> <u>Key Species</u>	<u>Shrub</u> <u>Key Species</u>
<u>No Livestock Grazing</u>	increase ^a	decrease ^a
<u>Continue Allotment-Wide Grazing</u>		
Spring	decrease ^b	static ^c
Spring-fall	static ^d	static ^c
Spring-Summer-Fall (begin in May or June)	static ^d	static ^d
Spring-Summer (begin in June)	static ^d	no shrub key species
<u>Continue Existing</u> <u>Improved Management</u>		
Rest Rotation	increase ^e	increase ex- cept for areas of big sage- brush control ^f
Deferred Rotation	increase ^g	static ^c
Deferred Rotation and Rest Rotation	increase ^{e,g}	static ^{c,f}
<u>Implement Improved</u> <u>Grazing Management</u>		
Spring, Summer, and Fall With Periodic Spring Deferment	increase ^g	static ^b or decrease
Spring-Fall With Periodic Deferment	increase ^g	static ^c

^aHeady, 1975, found in California on deer winter range that elimination of livestock grazing allowed grass to increase and browse to decrease.

^bLaycock, 1967; found that in northeastern Idaho, fall grazing can reduce sagebrush and favor grass species. A similar response is expected on these allotments.

^cFerguson (1979) has found that it is not likely that bitterbrush will increase with less than 18 months rest. Also, bitterbrush seedlings cannot compete effectively with grass and will not establish successfully on other than "scalped" or relatively bare areas. Sixty percent or less utilization of annual growth of bitterbrush should not harm the plant under most conditions. In fact, utilization held at this level promotes hedging and protects flowers and fruit so that more seed matures.

^dThe present management has been in effect for several years and composition is not expected to change.

^eRatliff (1972) has found that rest rotation grazing in northern California has (1) improved vigor of the key forage species (Idaho fescue); (2) has increased basal cover of the better plants; (3) has allowed a higher successional stage as indicated by a better species composition; (4) increased number of grass seedlings; (5) increased litter cover and less soil is exposed; (6) increased herbage yield; (7) has reduced soil compaction and improved water absorption.

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected Area

KEY SPECIES (continued)

^fStudies in Wyoming (Heady, 1975) showed that sagebrush spraying successfully increased native grasses. Similar results would be expected by spraying 1,260 acres on the Hoy Mountain and Ruple Cabin Allotments.

^gMorris, 1974, found that implementation of deferred rotation grazing allowed grasses to increase.

THREATENED AND ENDANGERED SPECIES

Threatened and endangered plant species welfare is provided for by protective measures which are a required standard of the proposal. Special surveys would be conducted prior to construction of range developments and vegetation manipulation and alteration of plans would be required if threatened and endangered species or their critical habitat could be affected.

The following threatened or endangered species have been identified in the planning unit. Penstemon acaulis (Scrophulariaceae), a candidate threatened species, and Parthenium ligulatum (Asteraceae) and Oxytropis obnapiformis (Fabaceae), proposed endangered species were collected in the Bridgeport Allotment in 1978. Arabis demissa variety languida (Brassicaceae), a candidate threatened species, was collected on the Antelope Flat-Goslin Mountain-Clay Basin Allotment in 1978. Cryptantha stricta (Boraginaceae), a candidate threatened species, is believed to be widespread in the Three Corners Planning Unit. However, it has been recommended by the BLM Vernal District Botanist that this species be removed from the candidate threatened species list. No available record verifies the occurrence of any other proposed, candidate or officially listed threatened or endangered plant species within the Three Corners Planning Unit (Neese, 1978 and Eng-land, 1979).

Construction disturbance could be the specific cause of impacts. The following is a list of allotments and acreage of potential disturbance from proposed range developments on which threatened and endangered species could be affected.

Though surveys would be conducted to identify critical habitat and location of individual plants, a possibility remains that inadvertant loss of some individual threatened and endangered plants may occur.

	Acres
Bridgeport	2.56
Taylor Flat-Watson	0.25
Dry Creek-South Pot Creek- Wild Mountain	3.36
Hoy Mountain	480.00
Ruple Cabin	785.12
Bealer Basin-Diamond Gulch- Diamond Spring	0.33
Clay Basin-Antelope Flat- Goslin Mountain	10.56
Cooper Draw	4.33
Davis Draw-Crouse Reservoir- Lambson	403.61
Gadson	4.00
Hatch Cove	2.25
Hoy Flat	1.25
Little Hole	8.50
Offield Mountain	4.25
Pot Creek	4.00
School Bus	4.25
Sears Canyon-Marshall Draw	3.25
Serviceberry Spring	4.00
Shiner	6.00
Warren Draw	8.50
Willow Creek	10.83
Total	1,751.20

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaTHREATENED AND ENDANGERED SPECIES (continued)

Vegetation manipulation by spraying of 1,260 acres with 2,4-D is proposed on Hoy Mountain and Ruple Cabin allotments.

Vegetation management by any of the available methods would probably affect endangered or threatened plant species if they are in the area being treated. Broadcast treatments are more likely to unintentionally damage unknown populations of such plants than are selective methods of treatment. Herbicides are no exception. The sensitivities of all plants are not known; we must, however, assume a 2,4-D program would have an adverse effect on them (Waters, 1979).

A survey of potential habitat for threatened or endangered species (candidate, proposed or officially listed) would be conducted prior to taking any action that may affect these species. Should BLM determine that an officially listed species would be affected, formal consultation with the U.S. Fish and Wildlife Service would be initiated.

It may be impossible to locate all individuals in a population. Response characteristics of these threatened and endangered plant species cannot be identified at this time.

Because of surveys, the mitigation portion of the proposal, and formal consultation with the Fish and Wildlife Service, it is not expected that the continued existence of any plant species would be jeopardized by the proposal.

FORAGE PRODUCTION

It is proposed to continue existing grazing management to maintain forage production on 19 allotments (43,876 acres) and to increase forage production on three allotments (31,110 acres). A total of 1,260 acres of sagebrush spraying is proposed on two allotments and deferred rotation or rest rotation grazing management would continue on 4 (39,538 acres) of the 22 allotments (74,968 acres).

Continuing existing grazing management would maintain forage production since management would continue that which has been in effect for many years and which has led to the present forage production. Spraying of sagebrush would kill sagebrush releasing moisture and soil nutrients for greater production of desirable forage species (Heady, 1975). This would result in a 67 AUM increase in production on Hoy Mountain Allotment and 109 additional AUMs on Ruple Cabin Allotment within 5 years (Heady, 1975). Continuation of the grazing systems on the Dry Creek-South Pot Creek-Wild Mountain Allotment would result in an increase in production of 191 AUMs within 15 to 20 years (10 percent increase X 1,906 AUMs). This is a conservative estimate in as much as predictions are as high as 34 percent (Morris, 1934). The increase in production results because desirable forage species are expected to increase in size and density.

It is proposed to implement improved grazing management on 17 allotments (115,568 acres) to increase forage production by 1,493 AUMs.

Improved management would increase forage production by 1,493 AUMs on 17 allotments within 15 to 20 years. The improved grazing management would allow greater growth and production from key grasses as indicated above.

The following shows the expected forage production by allotment within 20 years after implementing the proposal:

Proposed Action Sub-Component and Allotment	Present	Expected (20 years)
<u>CONTINUATION OF EXISTING MANAGEMENT</u>		
	14,390	14,757
<u>No Livestock Grazing</u>		
Rye Grass	508	508

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area	
FORAGE PRODUCTION (continued)		
Proposed Action Sub-Component and Allotment	Present	Expected (20 years)
<u>Continue Allotment-Wide</u>		
<u>Grazing</u>		
Bridgeport	794	794
Taylor Flat-Watson	2,141	2,141
Bowery Spring	638	638
Gadson Draw-Gerber Spring	494	494
Highway	200	200
McKee Spring	413	413
Natural Lake	275	275
Smokem-up	26	26
Bates Spring	112	112
Beaver Dam	135	135
Blair Basin	58	58
East Cow	104	104
Log Cabin	108	108
Mail Draw	170	170
Mame's Hole-Bear Hollow	203	203
Cove	420	420
West Cow	26	26
<u>Rest Rotation</u>		
Hoy Mountain	781	848
Red Creek	1,484	1,484
<u>Deferred Rotation</u>		
Dry Creek-South Pot Creek- Wild Mountain	2,359	2,550
<u>Deferred Rotation and Rest Rotation</u>		
Ruple Cabin	2,941	3,050
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>		
	19,953	21,446
Clay Basin-Antelope Flat- Goslin Mountain	4,915	5,241
Gadson	340	373
Hatch Cove	642	695
Hoy Flat	752	794
Jackson Draw-Crouse Canyon- Dry Hollow	1,704	1,823
Little Hole	1,361	1,432
Offield Mountain	580	613
Pot Creek	191	205
School Bus	293	320
Sears Canyon-Marshall Draw	1,465	1,566
Serviceberry Spring	265	288
Shiner	353	375
Warren Draw	965	1,043
Willow Creek	1,941	2,111
Bealer Basin-Diamond Gulch- Diamond Spring	2,354	2,574
Cooper Draw	780	853
Davis Draw-Crouse Reservoir- Lambson	1,052	1,140
Total	34,343	36,203

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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FORAGE PRODUCTION (continued)

The objective to increase forage production by 1,860 AUMs in the planning unit would be met.

FORAGE CONDITION

It is proposed to continue existing grazing management to maintain forage condition on 19 allotments (43,876 acres) and to improve forage condition on 7,321 acres on three allotments (31,110 acres). Deferred rotation or rest rotation grazing management would continue on four allotments.

Implement Improved Grazing Management (Regular Spring Deferment) on 17 allotments (115,568 acres).

A total of 1,260 acres of sagebrush spraying is proposed on two allotments and chaining of 400 acres on one.

Continuing existing grazing management would be expected to maintain forage condition on 19 allotments because management would continue that has been in effect for many years and has led to the present forage condition. The grazing systems that were implemented on the Ruple Cabin, Hoy Mountain, and Dry Creek-South Pot Creek-Wild Mountain allotments (which are designed to allow rest from grazing during periods critical to growth of desirable forage plants) would improve forage condition from fair to good on 6,877 acres within 15 to 20 years since key species would increase in size and density (Morris, 1934; Ratliff, 1972).

Implementing improved grazing management would improve 17,701 acres of fair condition range to good condition within 15 to 20 years after implementation. Forage condition improvement would result from periodic rest from grazing during periods critical for growth of key forage plants (Morris, 1934).

Spraying of sagebrush would improve forage condition on 444 acres from fair to good on Hoy Mountain Allotment within 5 years (Heady, 1975). The other 36 acres in the Hoy Mountain and the 780 acres on Ruple Cabin are presently in good condition and are expected to stay in good condition. A more detailed discussion of the effect of 2,4-D spraying occurs in the composition and ground cover section.

Since the 8,415 acres in poor forage condition in the unit are in the pinyon-juniper and Douglas fir types, and are believed to be in ecological climax, the range in poor forage condition would not be expected to improve (Dwyer, 1975).

The following are the areas of fair forage condition range, by allotment on which it is estimated that forage condition could be improved to good by implementing the proposal:

Allotment	Acres That Would be Improved
<u>Continue Existing Grazing Management</u>	
Hoy Mountain	444
Dry Creek-South Pot Creek-Wild Mountain	4,710
Ruple Cabin	2,167
<u>Implement Improved Grazing Management</u>	
Clay Basin-Antelope Flat-Goslin Mountain	10,517
Gadson	200
Hatch Cove	436
Hoy Flat	1,000
Pot Creek	577
School Bus	489
Sears Canyon-Marshall Draw	266
Serviceberry Spring	286
Warren Draw	397

VEGETATION ANALYSIS SECTION (continued)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaFORAGE CONDITION (continued)

Allotment	Acres That Would be Improved
Willow Creek	2,720
Bealer Basin-Diamond Gulch-	
Diamond Spring	270
Cooper Draw	543
Total	25,022

Present and expected forage condition 15 to 20 years after implementation of the proposal (acres total) is expected to be:

Condition	Present	Expected
Good	55,836	80,858
Fair	126,285	101,263
Poor	8,415	8,415

The objective to improve forage condition from fair to good on 25,022 acres (exclusive of those acreages in the Douglas fir and pinyon-juniper types) would be met.

TREND IN FORAGE CONDITION

No livestock grazing (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment (2,860 acres). Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs. Continuation of allotment-wide grazing on 17 allotments (32,570 acres) would perpetuate the current use of key forage species during the critical periods for growth and reproduction.

Actual trend studies have been initiated on 5 of the 39 allotments in the planning unit. These studies show:

Allotments	Trend ^a	
	Improving	Static
Clay Basin-Antelope Flat-		
Goslin Mountain	19,275	9,027
Hoy Mountain	2,039	1,511
Red Creek	4,889	3,569
Ruple Cabin	12,100	0
Taylor Flat-Watson	4,826	7,471
Total	43,129	21,578

^aNo areas are declining.

The current forage condition trend is estimated:

Improving	Static	Declining
38,240 (20%)	152,296 (80%)	0

Though composition may change in favor of grass over shrubs, the change would not be greater than that allowed in the objectives. It is expected that trend would remain static on the Rye Grass Allotment (2,860 acres) (Heady, 1975).

Trend would remain static on 16 allotments (20,273 acres) of the 17 (Taylor Flat-Watson excepted) where livestock grazing would continue allotment-wide. It is expected that 4,826 acres in the Taylor Flat-Watson Allotment would continue to improve, while the balance of that allotment would remain static (7,471 acres).

ENVIRONMENTAL IMPACTS

VEGETATION ANALYSIS SECTION (concluded)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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TREND IN FORAGE CONDITION (continued)

Continuation and implementation of improved grazing management on 22 allotments (55,106 acres) would provide periodic rest for key forage species during the growing season.

Periodic rest of key forage species would favor their growth and trend would continue to improve on 33,414 acres of the following three allotments where trend studies are established. Forage condition trend on 4,889 acres is expected to become static on the Red Creek Allotment as cattle have been introduced in the spring to control further grass development and preserve the existing grass-shrub composition.

<u>Allotment</u>	<u>Acres</u>
Clay Basin-Antelope Flat-	
Goslin Mountain	19,275
Hoy Mountain	2,039
Ruple Cabin	12,100
Total	33,414

An improving trend is expected to occur on all of the areas now in fair condition, except Douglas fir and pinyon-juniper vegetation types, on the remaining 16 allotments where improved grazing management would continue, or be implemented (Ratliff, 1972 [rest rotation]; Morris, 1934 [deferred rotation]). These allotments and acreages are shown below:

<u>Allotment</u>	<u>Acres</u>
Bealer Basin-Diamond Gulch-	
Diamond Spring	541
Cooper Draw	1,086
Dry Creek-South Pot Creek-	
Wild Mountain	9,419
Gadson	400
Hatch Cove	871
Hoy Flat	1,999
Pot Creek	1,154
School Bus	978
Sears Canyon-Marshall Draw	533
Serviceberry Spring	571
Warren Draw	794
Willow Creek	5,439
Total	23,787

The following trend would be expected for the next 15 to 20 years in the planning unit:

<u>Improving</u>	<u>Static</u>	<u>Declining</u>
62,027 (33%)	128,509 (67%)	0

Assessment

Improved management systems would include most of the unit, about 155,000 acres (81 percent). They would remove the present practice of spring grazing from about 60 percent of the managed area and allow full vegetal development of plants during the critical spring growing period. Rest would occur about 2 out of every 3 years during the spring period. In addition, on about 10 percent of the area (about 20,000 acres), livestock would be moved every summer (6/15 to 9/15) onto the National Forest range. The planning unit's range conditions have not been declining as evidenced by estimated forage trend examined over the last 12 to 20 years on representative rainfall zones. About two-thirds of the 65,000 acres in the allotments having trend data are improving. The remaining one-third has had a static trend. Desirable and intermediate species in the vegetation composition are above 60 percent on 162,000 acres (83 percent of the unit).

The planning unit is not all in good condition, however. Surveys indicate that about 70 percent of the area is in the poor to fair forage condition class. Erosion conditions are less than good on about 80,000 acres (about 51 percent). Average vegetation density over the unit is only about 25 percent on 70 percent of the area (110,407 acres). These less than desirable conditions are probably due to the following: 1) within the past 3 years, about 10 percent of the livestock use has been converted from sheep to cattle and cattle grazing tend to concentrate on areas susceptible to damage, particularly riparian areas and 2) about one-third of the area is in the low precipitation zone.

In the judgment of professionals working in the area over the past decade, the conditions under present management have been slowly improving since the last range adjudication in 1967, but improvement has been slow.

Conclusion

All these factors indicate that the management systems designed in the proposal can be reasonably expected to slowly produce a long-term improvement in both forage conditions and forage production.

Forage production capacity of the area is expected to improve from the present level of about 34,000 AUMs to about 36,000 AUMs as the vegetation conditions (vigor, litter, density, and species composition) improve. Forage condition is expected to change from the present 55,836 acres in good condition to 80,858 acres in good condition; and from 126,285 acres in fair condition to 101,263 acres fair condition. Poor condition range would remain at 8,415 acres.

IMPACT ON ANIMAL LIFE

The impact analysis for animal life covers the following species and groups: mule deer, elk, antelope, upland game, threatened or endangered species, fish, waterfowl, non-game mammals, non-game birds, reptiles and amphibians, and invertebrates. Some species, such as deer, are specifically identified because they would experience the direct effects of the proposal. Other species, such as non-game birds, are grouped because the effects of the proposal would be less direct and the precise impacts are not identifiable.

Impact identification specifically addresses three major components of the proposed action which are significant to animal life: 1) vegetation changes, 2) range developments, and 3) forage allocation.

Impacts to animal life would result from vegetation composition changes and livestock grazing changes. Changes in animal life populations would, in turn, impact recreation activities and economics.

ANIMAL LIFE ANALYSIS SECTION

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaMULE DEER

Continued existing livestock management is proposed on 22 allotments. Impacts would be caused by changes in vegetation composition from either grass to browse on the Taylor Flat-Watson Allotment and browse to grass on two allotments. Also proposed is the implementation of improved grazing management on 17 allotments. Impacts would be caused by a vegetation composition change toward grasses on all allotments.

Included in the proposal is the initial allocation of an additional 1,614 AUMs increasing to an allocation of 2,226 AUMs to deer for a total of 10,299 AUMs.

An additional 46 watering sites on 16 allotments are proposed.

Treating of sagebrush with 2,4-D on 1,260 acres is proposed on the Hoy Mountain and Ruple Cabin allotments.

Objectives which relate to deer are to maintain or improve their habitat and to allocate additional AUMs for deer. The objective to maintain or improve their habitat would be met even though numbers might never increase to use all the forage allocated to them.

Mule deer spring range would increase in quality (all allotments are currently in fair to good condition UDWR, 1979) on 118,428 acres (19 allotments) due to a change from browse to grass. Bertram, et al., (1977) found a strong preference by deer for both forbs and grasses during the spring. This same action would decrease the quality of the deer range during summer, fall, and winter over the same area, according to Bertram, et al., 1977; Knowles, 1975; and Pac, 1976. Summer, fall, and winter deer range should improve on 12,297 acres on Taylor Flat-Watson Allotment due to a vegetation change from grass to browse (Bertram, et al., 1977; Knowles, 1975; and Pac, 1976). Spring range quality would decrease on the same area (Bertram, et al., 1977). These quality changes would occur within 15 to 20 years and no change would occur on the 19 allotments proposed for continued allotment-wide grazing. The existing deer use is 8,070 AUMs annually. Red Creek and Bridgeport allotments, deer winter areas, are not expected to change.

Potential forage would be allocated for a base summer deer herd of 2,047 and a winter herd of 5,266 and for an initial increase of 781 deer on a 12-month basis and a long-term increase of 1,080 deer on a 12-month basis. This increase of animals, though somewhat dependent upon management policies of UDWR, can probably not be reached because crucial deer winter range cannot support this large an increase in deer numbers. This is particularly true in years when the amount of snow pack limits the size of the winter range.

Approximately 29,440 acres of deer range would be improved in quality due to the development of 46 additional water sites. This is based upon Hasley's (1956) findings that deer need one water site per square mile for optimum habitat conditions.

These areas are spring, summer, and fall deer range. Routine activities of individual mammal species may result in contacts with treated vegetation, soil, or waters, or ingestion of treated food. Such exposure under forest conditions has not proven hazardous to mammals.

Vegetation management would affect the vegetative layering of the area treated and the species of plants in the replacement community. Because the habitat needs of many species are very specific, some animals would be adversely affected, while other would benefit (Waters, 1979).

ANIMAL LIFE ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
<u>ELK</u>	
Existing livestock management practices are proposed to continue on 22 allotments. Impacts would be caused by changes in vegetation composition from either grass to browse on 1 allotment or browse to grass on 2 allotments. It is also proposed to implement improved grazing management on 17 allotments. Impacts would be caused by a vegetation composition change toward grasses on all these allotments.	Elk summer and winter ranges would improve in quality on 118,428 acres (19 allotments) due to a change from browse to grass. Boyd, (1970) found a strong preference by elk for grass dominated ranges during all seasons. Elk summer and winter range qualities would decrease in value on 12,297 acres (Taylor Flat-Watson Allotment) due to increasing browse composition and decreasing grass composition. Again, this assessment is based on Boyd's (1970) work on the White River elk herd in Colorado. These quality changes would occur within 15 to 20 years, while no change is expected on 19 allotments.
It is proposed to allocate 4,838 AUMs initially to elk and an additional 1,253 AUMs in the long-term for a total of 6,091 AUMs for elk on the planning unit.	Potential forage would be allocated for an initial increase of 345 elk on a 12-month basis and a long-term increase of 542 elk on a 12-month basis. This increase would be added to a summer base of 345 elk and to a winter base of 473. This increase of animals is dependent upon management policies of UDWR.
An additional 46 watering sites on 16 allotments are proposed.	Water development would benefit elk and their habitat. Leopold (1933) found an increase in water would allow better elk distribution and better utilization of the increased forage allocation.
Treating of sagebrush with 2,4-D on 1,260 acres is proposed on the Hoy Mountain and Ruple Cabin allotments.	These areas are spring, summer, and fall elk ranges (see Deer for discussion).
Elk objectives are to maintain or improve habitat and to allocate additional AUMs for elk. Overall, these objectives would be met.	
<u>ANTELOPE</u>	
Improved grazing management is proposed on two allotments within inventoried antelope range and spring grazing is proposed on Bridgeport. Impacts would be caused by changes in vegetative composition from browse to grass.	Overall habitat qualities (presently good condition, UDWR, 1979) on both summer and winter ranges are expected to decrease on 42,292 acres (on Willow Creek, Clay Basin-Antelope Flat-Goslin Mountain, and Bridgeport allotments) as grass increases. Yoakum (1967) shows in his bibliography of literature on antelope that browse and forbs are primary constituents of the dietary intake of antelope. Grasses, which are predicted to increase, make up only a minor dietary percentage, however, 380 AUMs of forage would still be available for antelope.
Also proposed is an additional 25 AUMs, year-long for antelope.	Potential forage would be allocated for an initial and long-term increase of 20 antelope (25 AUMs) on a 12-month basis. The increase would be added to a base on 287 wintering antelope on public lands and 284 antelope which summer there. This increase of animals is dependent upon management policies of UDWR.
An additional 19 watering sites are proposed on 3 allotments within inventoried antelope ranges.	Overall, habitat qualities would benefit from the development of 19 additional water sites within the next 20 years.
Antelope objectives of maintaining or improving habitat would be met. Objectives of allocating 380 AUMs of forage would be met.	
<u>UPLAND GAME</u>	
Under the proposed allotment-wide grazing on 17 allotments, one allotment would change from grass to browse. No change is expected on the remaining 16 allotments under this proposal.	Habitat conditions are rated fair to good for sage grouse, fair to good for cottontail rabbits and fair for mourning doves (UDWR, 1979). Changes in composition would not affect upland game.

ANIMAL LIFE ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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UPLAND GAME (continued)

Of the 21 allotments included under improved grazing management, the composition will generally change from browse to grass.

The proposed spraying of 1,260 acres of sagebrush on the Ruple Cabin and Hoy Mountain allotments, where vegetation conversion would occur on sage grouse habitat.

No adverse impacts to upland game is expected (UDWR, 1979).

As described in the section on deer, 2,4-D spraying would have no direct effect on mammals. 2,4-D has been found to be generally less toxic to birds than mammals. The oral lethal dose for birds with herbicide treated feed is typically greater than 5,000 p/m. Under field conditions, a bird would have to consume daily all the herbicide aurally applied to approximately 10 acres to duplicate the 5,000 p/m feed under controlled trials. Water solutions of 2,4-D, equivalent to 10 times recommended field concentrations, were sprayed on fertile pheasant eggs preceding incubation. No treatments were found to cause any adverse effect on hatching success, incident of malformed embryos, or subsequent chick mortality relative to water-sprayed control eggs (Water, 1979). The vegetation change by spraying would improve mourning dove habitat through increased grass seed production (Sanderson, 1977). Sage grouse could benefit if 20 to 30 percent of the sagebrush canopy is left (Wallsted, 1975). However, a reduction of the sagebrush canopy below 20 percent would reduce the quality of sage grouse habitat.

THREATENED OR ENDANGERED SPECIES
(BALD EAGLE)

There are no components of the proposal which relate directly to bald eagles.

Four (4) allotments (Bridgeport, Taylor Flat-Watson, Red Creek Flat and Little Hole)--20,595 acres, support 12-18 wintering bald eagles (Wagner, 1977). Impacts from allotment-wide grazing and improved management are expected to be minimal since eagles rely heavily on fish, and waterfowl as a secondary source, for food. The prey base is presently stable (UDWR, 1979) and not expected to change during the next 15 to 20 years as a result of proposed grazing management.

Objectives relating to the management of threatened or endangered species require protection of their habitat.

FISH

Under intensive grazing management, increased streambank cover could be expected on Jackson and Willow Creeks. This cover would be further improved by fencing riparian habitat along 1.4 miles of Jackson Creek. Static conditions are expected to remain on fish habitat related to allotments with continued allotment-wide grazing. An objective provides for improvement of riparian habitat and streambank cover.

The section of Green River associated with continued allotment-wide grazing would continue in a stable condition. That section associated with improved grazing management is presently rated in good condition and this habitat would continue to improve. Red Creek would continue to be the principal cause of deteriorating habitat (USGS, 1971-1976). With improved grazing management, fencing the riparian area at Devils Hole on Jackson Creek would improve streambank cover. Trout would benefit from cooler water temperatures and increased escape cover (Armour, 1978). Within 9 years (Wingar, 1977), the trout population could increase from the present 100 fish per mile to about 200 fish per mile on Jackson Creek (a total increase of about 70 fish on the BLM portion of the stream). Improved conditions would also result on Willow Creek under improved grazing management. Improvements on Willow Creek would occur within 15 to 20 years.

With improved grazing management, increases can be expected in grasses and associated ground cover adjacent to shorelines on Crouse and Calder reservoirs.

ENVIRONMENTAL IMPACTS

ANIMAL LIFE ANALYSIS SECTION (concluded)

Resource Sub-category and
Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected Area

WATERFOWL

Under improved management, riparian vegetation would improve in Sears Canyon-Marshall Draw Allotment. Other allotments under improved management and continue allotment-wide grazing are expected to remain static.

Waterfowl habitat condition is rated poor to fair on 10 allotments (74,927 acres) (UDWR, 1978). Increasing ground cover and overhead canopy which improves nesting cover and would improve habitat conditions areas on Sears Canyon-Marshall Draw. No impacts would result on other allotments.

NON-GAME MAMMALS

Implementation of improved management and continuing existing improved management with proposed sagebrush control projects would cause a vegetation change in favor of grasses. Treating of sagebrush with 2,4-D on 1,260 acres is proposed on the Hoy Mountain and Ruple Cabin allotments.

The specific impacts to the 43 species of non-game mammals in the unit cannot be accurately identified. Areas of sagebrush conversion (1,660 acres) would have both adverse and beneficial impacts to primary food chain components (herbivores) and secondary impacts to tertiary food chain components (carnivores). (See Section on Deer for impact analysis of 2,4-D treatment.)

NON-GAME BIRDS

Implementation of improved management and the continuation of present improved management along with sagebrush control projects, would cause a change in the vegetation composition. This change would mainly favor grasses. Treating of sagebrush with 2,4-D on 1,260 acres is proposed on the Hoy Mountain and Ruple Cabin allotments.

Impacts cannot be accurately identified for the 141 species of non-game birds in the unit. Vegetation changes would be beneficial to some birds and may adversely affect others. (See section on upland game for impact analysis of 2,4-D treatment.)

REPTILES AND AMPHIBIANS

Implementation of improved management, continuing improved management, and the proposed sagebrush control projects would cause vegetation type conversions favoring grasses. The conversion would cause changes in the primary and secondary food chain users, resulting in a change in the prey base.

Impacts cannot be accurately identified for the 6 species of amphibians and 14 species of reptiles which exist on the planning unit. The protection of riparian zones would benefit amphibians (Hufford, 1977).

INVERTEBRATES

Vegetation changes would occur as the result of the proposed action.

Even though invertebrates provide a prey base for a variety of other animal species, no data is available on species occurrence or habitat requirements of invertebrates. Morris (1967), however, found that selected insects were consistently adversely affected by any degree of grazing pressure. Morris also found a correlation between the diversity of insects and the diversity of vegetation composition. The correlation indicates that any increased grazing pressure would adversely affect invertebrates, but intensive grazing management would reduce the impact.

Assessment

Spring deer ranges would improve on 118,428 acres during the 15 to 20 year project life because of increased grass production. Winter ranges would decrease in quality during the same period, as grazing systems increased the amount of desirable grasses and reduce wildlife browse. There are 8,070 AUMs of deer forage reserved in the unit with a projected increase to 10,299 AUMs. The increases would come about as a result of the intensive management of 20,755 acres to maintain or increase shrubby species and the improved quality of 29,440 acres due to development of additional water. The additional allocation would provide for an additional 1,080 deer to add to the lease of about 2,000 summer and about 5,000 winter deer. However, there is some question as to the ability of the winter range to support that increase in deer.

About 118,428 acres of elk summer-winter ranges would be improved by increasing the amount of desirable species through intensive management. There would be a decrease in the vegetation quality on 12,297 acres of fall-winter range managed to maintain or increase shrubby species. There are 4,838 AUMs of forage initially allocated to elk and 6,091 AUMs would be allocated in the long-term through grazing systems which result in an increase in grass species. Summer elk populations could increase from 345 to double that number, and winter elk numbers would increase from 542 to about 1,000 elk by the end of 20-year period.

Antelope habitat quality would decrease on 42,292 acres as a result of grazing systems which would increase the amount of grass and decrease the forbs species. Even with this change in composition, it is felt that existing space limits the expansion of the herd. Biologists, however, do feel that there is room for an additional 25 AUMs which would result in a total of 405 antelope AUMs in the next 15 to 20 years. This would allow for an increase of 20 antelope.

Vegetation composition ground cover and plant vigor would continue to improve during the next 15 to 20 years. The impacts to upland game, threatened and endangered species, fish, waterfowl, non-game mammals, non-game birds, reptiles and amphibians, and invertebrates are not significant and are not quantifiable or measureable.

Conclusion

Because many outside influences other than forage affect wildlife numbers, it cannot be predicted whether wildlife numbers can increase to the allocated levels.

IMPACT ON CULTURAL RESOURCES

Cultural resources (including historic and prehistoric sites) exist within the planning unit and are related to the social-cultural values of local, state and national populations.

The specific effects of the proposed action on cultural resources are analyzed below.

CULTURAL RESOURCES ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
The range developments involve ground-disturbing actions resulting from sagebrush control (chain-ing), and the construction and use of water pipelines, water troughs, springs, water storage tanks, reservoirs, and fences.	Forty-three sites have been recorded in nine of the allotments scheduled for range developments. Limited cultural resource work has been done in the remaining 21 allotments scheduled for range developments, but additional sites are assumed to exist in the area. Ground disturbance associated with range developments could damage or destroy cultural resources, but mitigation included in the proposal would prevent adverse impacts to significant sites. Regardless of mitigation, adverse impacts may occur in isolated cases. This could occur on 461.2 acres.

Conclusion

Cultural resources could be inadvertently damaged by proposed ground-disturbing range developments or sagebrush control. Such damage would be avoided or minimized by adherence to provisions of the National Historic Preservation Act of 1966 and the standard design, construction, and operating features listed in Chapter 1 and as agreed to with the State Historic Preservation Officer (see Letter in Chapter 9).

IMPACT ON PALEONTOLOGY

The specific effects of the proposed action on paleontological resources are analyzed below.

PALEONTOLOGY ANALYSIS SECTION

<u>Relationship to Proposed Action</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
Ground disturbing activities are proposed on two allotments containing fossil-bearing formations.	Fossil-bearing formations are exposed in two of the allotments scheduled for range developments. The Fort Union Formation, containing plant fossils, is exposed in the Clay Basin-Antelope Flat-Goslin Mountain and Willow Creek allotments. The Hilliard Shale, containing invertebrate fossils, is exposed in the Clay Basin-Antelope Flat-Goslin Mountain and Willow Creek allotments. Ground disturbance associated with range developments could damage or destroy paleontological resources, but mitigation included in the proposal would prevent most adverse impacts. Regardless of mitigation, adverse impacts may inadvertently occur in isolated cases. The range developments involve ground-disturbing construction activities. Construction would disturb 21.39 acres in these allotments.

Conclusion

Ground-disturbing actions resulting from construction and use of proposed range developments could inadvertently damage or destroy an unknown amount of fossil resources in the Clay Basin-Antelope Flat-Goslin Mountain and Willow Creek allotments. Loss or damage to paleontological resources would be avoided or minimized by adherence to standard design, construction, and operating features listed in Chapter 1.

IMPACT ON VISUAL RESOURCES

The quality of the visual resources is tied to quality of the recreational resource and special designation areas. Structures and disturbance from proposed range developments and vegetation manipulation are the sources of impacts to visual resources.

Impacts would be:

VISUAL RESOURCE ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
Seventy-one range developments and 1,660 acres of vegetation manipulation are proposed.	Visual Resource Management (VRM) Class II, III, IV, and V areas have been identified in the planning unit. The management objective for each VRM class allows a different degree of visual modification in the landscape (Appendix III-2). Evidence of livestock management is common in the form of fencelines, water developments and chained areas. Most range developments and all vegetation manipulations would be located in Class III, IV, and V areas. Fencing and spring development may occur within Class II areas in Little Hole and Sears Canyon-Marshall Draw allotments. Structures and disturbance from proposed range developments and vegetation manipulation would cause a visual modification in the landscape. In all cases, visual modification would be compatible with the management objective for the VRM class area in which it would occur (Appendix III-2).

Conclusion

No impacts are anticipated on visual resources.

IMPACT ON RECREATION RESOURCES

The quality of recreation in the planning unit is interrelated with the quality of the visual resource and the availability of fish and game. The impact analysis assumes that the planning unit provides a certain amount of success, satisfaction and hunter-fisherman days. With any increase or decrease in wildlife numbers, the planning unit would provide for a direct increase or decrease in hunter success, satisfaction or hunter-fisherman days.

RECREATION ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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INVENTORIED RECREATION SITES

Thirty-one range developments and 1,660 acres of vegetation manipulation are proposed within allotments containing inventoried recreation sites.

The planning unit contains 31 inventoried recreation sites for picnicking and camping, located within 21 allotments.

The following eight allotments contain ten inventoried recreation sites that could be directly impacted by range developments or vegetation manipulations: Hoy Mountain, Ruple Cabin, Little Hole, Pot Creek, Sears Canyon-Marshall Draw, Warren Draw, Willow Creek, Cooper Draw. (Sites within these allotments that are located along the Green River are not included because it is not anticipated that they would be affected). The recreational value of inventoried sites could be reduced or destroyed, if sites are directly impacted by range developments or vegetation manipulations.

OFF ROAD VEHICLE ACCESS

Thirty-one miles of fence are proposed.

Four-wheel driving, usually associated with hunting, occurs on unmaintained trails throughout the planning unit.

Unmaintained trails could be fenced in the following 13 allotments: Gadson, Hatch Cove, Hoy Flat, Little Hole, Offield Mountain, Pot Creek, School Bus, Sears Canyon-Marshall Draw, Serviceberry Spring, Shiner, Warren Draw, Willow Creek, and Cooper Draw. If unmaintained trails were crossed by fences, access would be reduced.

FISHING

The proposal would improve fisheries habitat in Jackson Creek.

Trout fishing occurs in the Green River, Willow Creek, Jackson Creek, Crouse Reservoir, and Calder Pond. No increase in fisherman success, satisfaction, or days is anticipated.

HUNTING

The proposal would allocate 1,614 additional AUMs for deer initially, and 2,229 additional AUMs for deer over the long-term, providing for an increase in 781 deer initially and 1,080 deer over the long-term on a year-long basis.

The planning unit provides opportunities for hunting deer. The potential increase in deer numbers, based on the present hunter success ratio, would provide an additional 2,986 deer hunter days over the short-term and an additional 4,127 deer hunter days over the long-term.

The proposal would allocate 2,204 additional AUMs for elk initially and 3,457 additional AUMs for elk over the long-term, providing for an increase in 345 elk initially and 542 elk over the long-term on a year-long basis.

The planning unit provides opportunities for hunting elk. The potential increase in elk numbers, based on the present hunter success ratio, would provide for an additional 1,643 elk hunter days over the short-term, and for an additional 2,577 elk hunter days over the long-term.

The proposal would allocate 25 additional AUMs for antelope, resulting in a possible increase of 20 antelope on a 12-month basis. It could decrease sage grouse and would increase mourning dove, cottontail, and waterfowl habitat.

The planning unit provides opportunities for hunting antelope, sage grouse, cottontail, mourning dove, and waterfowl. Little affect is anticipated on hunter success, satisfaction and days.

Assessment

Impact to recreation would include structures and disturbance from proposed range developments; vegetation manipulation that could reduce the aesthetic qualities of recreation use areas; structures that could impede recreational access; and any change in management or allocation that would alter numbers of wildlife available for hunting and fishing.

Conclusion

Because of standard design features, no impact to recreation would occur.

IMPACT ON LIVESTOCK GRAZING

This section deals with the anticipated impacts which the proposed action would have on livestock grazing on the planning unit.

Impacts to livestock grazing would be:

LIVESTOCK GRAZING ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
Continuing the present allotment-wide grazing on 17 allotments and no grazing on one allotment would result in no change in livestock grazing.	Livestock numbers (2,490 cattle and 10,055 sheep) and present grazing use (2,545 AUMs) would remain the same on 17 allotments (32,570 acres).
Continuing existing improved grazing management on four allotments, including 1,260 acres of spraying and other developments, would result in an initial increase forage allocation of 219 AUMs and a long-term increase of 526 AUMs on Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments. No increase would take place on Red Creek.	Additional forage allocated to livestock would result in an increase of 40 cattle, resulting from spraying, in 3 to 5 years, and a long-term increase of 98 cattle on Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments--31,080 acres (BLM, 1976). This increase would be added to a base of 1,223 cattle which are presently grazing on the above three allotments. The improved grazing management, including sagebrush spraying and water developments, would lead to improved forage conditions (Pechanec, 1965 and Stoddard, Smith, and Box, 1975) which would in turn lead to increased weight gains on calves. Cook (1966) found that calves grazing on improved ranges would gain up to 0.6 pounds per day more than calves grazing on adjacent unimproved ranges.
Implementing improved grazing management, including developments and chaining on 17 allotments, would result in an initial increased forage allocation of 1,651 AUMs and a long-term increase of 1,493 AUMs.	Additional forage allocated to livestock would result in an initial increase of 159 cattle and 897 sheep and an increase of 202 cattle and 440 sheep in the long-term (BLM, 1976). This increase would take place on 17 allotments (115,568 acres) and would be added to the present base of 3,074 cattle and 7,023 sheep now grazing on these allotments. Implementation of improved grazing management systems along with the proposed range developments and chaining, would lead to better livestock distribution (Stoddard, Smith, Box, 1975) as well as better forage condition (Morris, 1934). With ranges in better forage condition, calves are expected to gain 0.6 pounds additional weight per day than calves on adjacent unimproved ranges and lambs would gain 0.03 pounds additional weight per day than lambs on adjacent unimproved ranges (Cook, 1966).
Should the proposal be implemented, the objectives of increasing livestock use by 1,860 AUMs on 20 allotments would be met.	

Assessment

There are two major impacts identified in the analysis: (1) an increased allocation of forage which would allow both cattle and sheep numbers to increase on three allotments now under improved grazing management and 17 allotments proposed for improved grazing management, and (2) an increase in amount of red meat being produced on the planning unit resulting from improved forage condition.

Conclusion

There would be a long-term increase of 2,019 AUMs from the implementation of the proposal.

IMPACT ON SPECIAL DESIGNATION AREAS

Structures and disturbance from proposed range developments and vegetation manipulation are the source of impacts to Wilderness, Wild and Scenic Rivers, and Outstanding Natural Area values. Impact analysis assumes that:

FLPMA mandates that BLM manage lands that are being reviewed (Wilderness Inventory Units) in a manner which will not impair their suitability for wilderness designation by Congress. As stipulated in Chapter 1, a development could not be authorized in an area being reviewed for wilderness if range developments, vegetation manipulations or their cumulative effects would impair wilderness suitability. Large vegetation chainings or sprayings and such permanent range developments as large reservoirs could impair wilderness suitability. Easily removable or visually unobtrusive range developments such as fences, pipelines, water troughs, springs and storage tanks might not impair wilderness suitability subject to appropriate design, location, construction, maintenance and rehabilitation and might be authorized. Also, range developments and vegetation manipulations necessary to an existing grazing use being conducted in the same manner and degree as October 21, 1976, could be authorized even if wilderness suitability is impaired, if construction were regulated to afford environmental protection and prevent undo and unnecessary degradation of the land and resources.

As long as VRM Class II objectives are met for Crouse Canyon and the Green River corridor, structures and disturbances would not affect the suitability of these areas for special designation.

SPECIAL DESIGNATION AREA ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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WILDERNESS

Seventy-one proposed range developments and 1,660 acres of vegetation manipulation are proposed.

The initial step in BLM's wilderness review process has been completed within the planning unit and 11 wilderness inventory units have been identified within all or part of 25 allotments.

Range developments and vegetation manipulation are proposed within 18 of the 25 allotments that contain wilderness inventory units. These are as follows: Bridgeport, Taylor Flat-Watson, Hoy Mountain, Ruple Cabin, Dry Creek-South Pot Creek-Wild Mountain, Clay Basin-Antelope Flat-Goslin Mountain, Pot Creek, Sears Canyon-Marshall Draw, Serviceberry Spring, Shiner, Warren Draw, Willow Creek, Bealer Basin-Diamond Gulch-Diamond Spring, Cooper Draw, Davis Draw-Crouse Reservoir-Lambson. No impact is anticipated due to Chapter 1 mitigation.

WILD AND SCENIC RIVER

No developments are proposed within the river corridor.

The National Park Service is studying the Green River from the base of Flaming Gorge Dam through Browns Park for possible Wild and Scenic River designation. The proposal would not affect the suitability of the Green River for Wild and Scenic River designation.

OUTSTANDING NATURAL AREA

Fencing and spring developments are proposed in the two allotments that contain Crouse Canyon.

Crouse Canyon, located in Taylor Flat-Watson and Sears Canyon-Marshall Draw, is being considered by BLM for designation as an Outstanding Natural Area. Structures and disturbance as proposed would not affect the suitability of Crouse Canyon for Outstanding Natural Area designation.

Conclusion

If areas within the planning area are determined to have wilderness values, some of the proposed development might not be allowed (see Chapter 1 Standard Design Features).

No impact to special designation areas would occur.

ENVIRONMENTAL IMPACTS

IMPACT ON LAND USE PLANS

Since state and local government also have jurisdiction in the Three Corners Planning Unit, changes made in present grazing operations and practices are of concern to them. Impact analysis deals with the relationship between existing land use plans, controls, and constraints and the proposed action.

LAND USE PLANS ANALYSIS SECTION

<u>Relationship to Proposed Action</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
None of the zoning designations applied to the area conflict with livestock grazing or range improvement programs. The policies of the Utah Division of State Lands are consistent with the proposed use of the area's resources.	The planning unit is currently covered by three county zoning ordinances which would not affect or be affected by the proposal.

Conclusion

No conflicts between the proposed action and existing local land-use plans would occur.

IMPACT ON ECONOMIC CONDITIONS OR RANCH OPERATORS

The analysis of the socio-economic consequences of the proposal is based on all of the relationships and the impacts to natural resources, land uses and livestock operations previously identified in this chapter. The analytical framework began by focusing upon three distinct levels: regional, community, and individual rancher.

The economic analysis focuses on impacts to the livestock operators. The following assumptions are used in that analysis:

- (1) Due to the difficulty of predicting future livestock market conditions, the economic analysis would assume that 1977 market conditions would prevail. This is the best data available for unit prices and ranch expenses. As noted in Chapter 2, however, livestock prices have increased since 1977. Any future changes in livestock market conditions would result from variables outside the proposed action of this statement.
- (2) The economic analysis would assume that the capital values of grazing permits (per AUM) would not change with the proposal. Changes in permit sizes could affect the overall capital value of a ranch property. Any change in a permit has the potential of affecting the ranch's ability to secure a loan and, consequently, its overall capital value. However, because of the many outside factors affecting ranch values, no further discussion is presented.

The following narrative for economics presents the projected impacts for the three representative ranch sizes described in Chapter 2, and the recreation sector.

ECONOMIC CONDITION ANALYSIS SECTION

Relationship to Proposed Action Existing Environment,
Probable Impacts, and Affected Area

INCOME TO SMALL OPERATORChange From Allocation

Additional AUMs would be provided to small ranch operators. Allocation of forage to livestock would increase on Smokem-up, Blair Basin, East Cow, Mame's Hole-Bear Hollow, Ruple Cabin, Clay Basin, Gadson, Hatch Cove, Hoy Flat, Offfield Mountain, School Bus, and Serviceberry allotments. After 3 to 5 years, 448 AUMs would be increased on seven allotments from implemented improved management and from sagebrush control on Ruple Cabin. In the long-term, 363 AUMs would be allocated to the eight allotments.

Twenty-four operators are permitted to use 12 allotments (13 operators are permitted on Ruple Cabin under improved management). The average small operator (BLM, 1979) has 81 animal units; all but one are cattle operations. (The one sheep operation has so few sheep [14 AUMs] that it is not considered part of this analysis.) The average small ranch net income is estimated to be \$1,150.00 in 1977.

The average small operator would be allowed to increase herd size by approximately three animals in the initial phase.

$$\left(\frac{448 \text{ AUM}}{24 \text{ operators}} \div 5.5 \text{ months} = 3.39 \right)$$

The average increase would not change in the long-term as the 363 AUMs which would be allocated is also about three animals $[(363 \div 24) \div 5.5 = 2.7]$. The estimated gross ranch budget would then become:

Initial and Long-term

Gross Income from 84 AUs = \$9,214.00
(81 present + 3 additional AUs)
84 cattle @ \$109.69 per AU.

Expenses: 8,021.00
Fixed costs: 84 AUs @ \$61.70 = \$5,183.00
Variable costs: 84 AUs @ \$33.79 = \$2,338.00

Change in Weight Gain of Animals on Improved
Grazing Allotment

Improved grazing management would be implemented on seven allotments (listed above) and Ruple Cabin would continue to have improved management. It is estimated that 0.6 pounds per day would be added to calves in allotments with improved management (Cook, 1966).

The following allotments and listed AUMs would be under improved management:

Allotment	Initial AUMs	Long-Term AUMs
Ruple Cabin	2,535	2,558
Clay Basin-Antelope		
Flat-Goslin Mountain	384 ^a	420 ^a
Gadson	193	93
Hatch Cove	393	334
Hoy Flat	333	357
Offfield Mountain	262	401
School Bus	219	207
Serviceberry	165	136
Total	4,484	4,506

About 95 percent of the cattle AUMs would be under improved management. Applying this factor to the estimated number of marketable calves (44^b) would mean that 42 calves would weigh an additional 90 pounds^c when marketed. This would provide \$1,421.00 of additional income to the average small scale ranch from cattle. These figures apply to both initial and long-term phases of the proposal.

ECONOMIC CONDITION ANALYSIS SECTION (continued)

Relationship to Proposed ActionExisting Environment,
Probable Impacts, and Affected Area

^aThis community allotment is also used by a large operator.

^bRatio of marketable calves to cows in the existing ranch budget was applied to the estimated number of cows under the proposal.

^c150 days at 0.6 pounds per day = 90 pounds.

Increased Cost of Managing Developments

The additional maintenance cost to small ranchers from range developments in the proposed action would be \$15,000.

The increased cost divided by the increased AUMs is \$8.02 and \$8.06 per AUM respectively. The average small operator would receive 19 additional AUMs initially and 15 in the long-term. The initial 19 AUMs would cost the small operator \$152.00 annually. In the long-term, the operator would receive 15 AUMs, which would cost \$121.00.

Income Summary

The estimated initial and long-term change expected to occur to the small ranch budget would be:

	Existing	Initial	Long-Term
Total Gross Income:	\$8,885.00	\$10,635.00	\$10,635.00
Gross income from Allocation:			
	\$9,214.00		
Additional gross income from management:	\$1,421.00		
Total Costs	\$7,735.00	\$ 8,173.00	\$ 8,142.00
Total costs from allocation:			
	\$8,021.00		
Additional costs of management improvement:	\$152.00 initial		
	\$121.00 long-term		
Projected Net Income	\$1,150.00	\$2,462.00	\$2,493.00
Net income per animal unit (84 AUs)		\$29.31	\$29.68
Net Income per AUM (1,008 AUMs)		\$2.44	\$2.47
Projected Net Increase From the Proposal to Small Operator		\$1,312.00	\$1,343.00

ENVIRONMENTAL IMPACTS

ECONOMIC CONDITIONS ANALYSIS SECTION (continued)

Relationship to Proposed Action Existing Environment,
Probable Impacts, and Affected Area

INCOME TO MEDIUM OPERATOR

Change From Allocation

Additional AUMs would be provided to medium ranch operators on Bridgeport, Natural Lake, Bates Spring, Beaver Dam, Log Cabin, Mail Draw, Hoy Mountain, Dry Creek-South Pot Creek-Wild Mountain, Little Hole, Pot Creek, Sears Canyon-Marshall Draw, Shiner, Warren Draw, Willow Creek, and Cooper Draw. After 3 to 5 years, 695 AUMs would be added on seven allotments for implementation of improved management and from sagebrush control on Hoy Mountain. Over the long-term, 663 AUMs would be allocated to the eight allotments. This translates to 50 AUMs short-term and 47 AUMs long-term for the average medium operator.

Fourteen operators are permitted to use 15 allotments. The average medium operator has 224 animal units (BLM, 1979) ; of which 141 represent cattle and 83 represent sheep. It is estimated that the average medium operator presently operates at a net loss of \$6,914.00 per year.

The average medium operator would be allowed to increase herd size by nine animals in the initial phase.

$$\left(\frac{695 \text{ AUMs}}{14 \text{ operators}} \div 5.5 \text{ months} = 9.03 \right)$$

The average increase would not change in the long-term as the 663 AUMs which would be allocated $[(663 \div 14) \div 5.5 = 8.6]$ is also 9 animals. The estimated gross ranch income would then become:

Gross Income from 233 animal units \$40,514.00
(224 present and 9 additional)
147 cattle AUs @ \$108.60 = \$15,964.00
86 sheep AUs (X5) @ \$285.47 = \$24,550.00

Expenses: 47,765.00
Fixed Costs: 233 AUs @ \$106.32 = \$24,773.00
Variable Costs: 233 AUs @ \$98.68 = \$22,992.00

Change in Weight Gain of Animals on Improved Grazing Allotment

Improved grazing management would be implemented on seven allotments (listed above) and Hoy Mountain and Dry Creek-South Pot Creek-Wild Mountain allotments would continue to have improved management. It is estimated that 0.6 pounds per day would be added to calves in allotments with improved management, and 0.03 pounds per day for lambs.

The following allotments and listed AUMs would be under improved management:

Allotment	Initial AUMs	Long-Term AUMs
Hoy Mountain	552	619
Dry Creek-South Pot Creek-Wild Mountain	1,280 ^a	1,327 ^a
Little Hole	388	401
Pot Creek	107	121
Sears Canyon-Marshall Draw	692	662
Shiner	177	199
Warren Draw	505	453
Cooper Draw	525	417
Willow Creek	815 ^a	809 ^a
Total	5,041	5,008

Ninty percent $(4,120 \div 4,601)$ of the cattle AUMs would be under improved management. Applying this factor to the estimated calf crop of 76 calves for the medium size operator, would mean that 68 calves would weigh an additional 90 pounds^c when marketed. This would mean \$2,301.00 of additional income from cattle. These figures apply to both initial and long-term phases of the proposal.

ECONOMIC CONDITIONS ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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Income From Change in Weight Gain of Animals
on Improved Grazing Allotment (continued)

Sixty-eight percent ($525 \div 772$) of the sheep AUMs would be under improved management. Applying this figure to the estimated crop of 538^a lambs would mean that 366 lambs would weigh an additional 4.5 pounds^c when marketed. This would provide an additional \$823.50 of income to the medium size ranch budget. Again these figures apply to both initial and long-term phases.

Taken together, the income from additional weight gains for calves and lambs would increase the medium scale ranch income \$3,125.00.

^aPortions of these community allotments are used by medium scale operators.

^bRatio of marketable calves to cows in the existing ranch budget was applied to the estimated number of cows under the proposal.

^c150 days at 0.6 pounds per day = 90 pounds.

^dPercent of marketable lambs to ewes in the existing ranch budget was applied to the estimated number of ewes under the proposal.

^e150 days at 0.03 pounds per day = 4.5 pounds.

Increased Cost of Managing Developments

The additional maintenance cost to the medium rancher from range development in the proposed action would be \$401.00 initially and 379.00 in the long-term.

The initial 50 AUMs per year would cost the average medium operator \$401.00 annually for maintenance of new developments ($50 \times \$8.02$). In the long-term, this operator would receive 47 additional AUMs per year, which would cost \$379.00

Income Summary

The estimated initial and long-term change expected to occur in the medium ranch budget would be:

	Existing	Initial	Long-Term
Total Gross Income	\$39,006.00	\$43,639.00	\$43,639.00
Gross income from Allocation:			
	\$40,514.00		
Additional gross income from management:	\$ 3,125.00		
Total Costs	\$45,920.00	\$48,204.00	\$48,182.00
Total costs from allocation:			
	\$47,803.00		
Additional costs of management improvement:	\$401.00 initial		
	\$379.00 long-term		
Projected Net Income (loss)	-\$6,914.02	-\$4,565.00	-\$4,543.00
Net income (loss) per animal unit (233 AUs)		-\$19.59	-\$19.50
Net Income (loss) per AUM (2,803 AUMs)		-\$1.63	-\$1.62

Projected Increase in Net Income From the Proposal to Medium Operator \$2,349.00 \$2,371.00

ENVIRONMENTAL IMPACTS

ECONOMIC CONDITIONS ANALYSIS SECTION (continued)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
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INCOME TO LARGE OPERATOR

Change From Allocation

Additional AUMs would be provided to large ranch operators. Allocation of forage on Clay Basin-Antelope Flat-Goslin Mountain, Jackson Draw-Crouse Canyon-Dry Hollow, Willow Creek, Davis Draw-Crouse Reservoir-Lambson, and Bealer Basin-Diamond Gulch-Diamond Spring allotments would be increased.

Seven large operators are permitted to use 12 allotments. The average large operator (BLM, 1979) has 705 animal units; of which 391 represent cattle and 314 represent sheep. The typical large ranch net income is \$57,044.00

Initially large scale operators would receive a total increase of 727 AUMs with the average large operator receiving 103 AUMs. In the long-term phase, the total is 836 AUMs with an average of 119 AUMs.

The average large operator would be allowed to increase herd size by 19 AUs initially and 22 in the long-term. The estimated gross ranch budget for the initial and long-term phases would then become:

Initial

Gross Income from 724 animal units	\$123,824.00
398 cattle AUs @ \$103.78 =	\$41,304.00
326 sheep AUs (X5) @ \$253.13 =	\$82,520.00

Expenses:	64,718.00
Fixed Costs: 724 AUs @ \$69.25 =	\$50,137.00
Variable Costs: 724 AUs @ \$20.14 =	\$14,581

Long-Term

Gross Income from 727 AUs	\$123,837.00
403 cattle AUs @ 103.78 =	\$41,823
324 sheep AUs (X5) @ 253.13 =	82,014

Expenses:	64,987.00
Fixed costs: 272 AUs @ 69.25 =	\$50,345.00
Variable Costs: 727 AUs @ 20.14 =	14,642.00

Change in Weight Gain of Animals on Improved Grazing Allotment

Improved grazing management would be implemented on the allotments listed above. It is estimated that 0.6 pounds per day would be added to calves in allotments with improved management, and lambs would gain 0.03 pounds per day.

The following allotments and listed AUMs would be under improved management:

Allotment	Initial AUMs	Long-Term AUMs
Clay Basin-Antelope Flat-Goslin Mountain	2,531 ^a	2,804 ^a
Jackson Draw-Crouse Canyon-Dry Hollow	981	1,099 ^a
Willow Creek	742 ^a	737 ^a
Davis Draw-Crouse Reservoir-Lambson	674	660
Bealer Basin-Diamond Gulch-Diamond Spring	1,614	1,340
Wild Mountain	299 ^a	310 ^a
Total	6,841	6,950

ECONOMIC CONDITIONS ANALYSIS SECTION (continued)

Relationship to Proposed Action

Existing Environment,
Probable Impacts, and Affected AreaINCOME TO LARGE OPERATOR (continued)

Initially about 88 percent of the cattle AUMs would be under improved management. Applying this factor to the estimated number of marketable calves (191^b) would mean that 168 calves would weigh 90 pounds^c more when marketed. This would provide \$5,685.00 of additional income to the large scale ranch from cattle.

In the long-term about 80 percent of the sheep AUMs would be under improved management. Applying this figure to the estimated 1,760^d marketable lambs would mean that 1,408 would weigh an additional 4.5 pounds^e when marketed, providing \$3,168.00 of additional income to the large scale ranch from sheep.

The income from the initial phase from additional weight gains for calves and lambs would increase to the large scale ranch budget by \$8,853.00.

In the long-term, about 89 percent of the cattle AUMs would be under improved management. Applying this factor to the estimated number of marketable calves (193^b) would mean that 172 calves would weigh 90 pounds^c more when marketed. This would provide \$5,820 of addition income to the large scale ranch from cattle.

About 77 percent of the sheep AUMs would be under improved management in the long-term. Applying this factor to the estimated 1,750^d marketable lambs would mean that 1,348 of them would weigh 45 pounds^e more when marketed, providing \$3,033.00 of additional income to the large scale ranch from sheep.

The income from additional weight gains for calves and lambs in the long-term would increase income to the large scale ranch by \$8,853.00.

^aThe portion of these community allotments used by small scale operators.

^bRatio of marketable calves to cows in the existing ranch budget was applied to the estimated number of cows under the proposal.

^c150 days at 0.6 pounds per day = 90 pounds.

^dPercent of marketable lambs to ewes in the existing ranch budget was applied to the estimated number of ewes under the proposal.

^e150 days at 0.03 pounds per day = 4.5 pounds.

Increased Cost of Managing Developments

The additional maintenance cost to the large operator from range developments in the proposed action would be \$826.00 annually initially and \$959.00 in the long-term.

The initial 103 AUMs per year would cost the average large operator \$826.00 annually. In the long-term, he would receive 119 additional AUMs per year, which would cost \$959.00.

Income Summary

The estimated initial and long-term change expected to occur in the large ranch budget would be:

ENVIRONMENTAL IMPACTS

ECONOMIC CONDITIONS ANALYSIS SECTION (concluded)

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area		
<u>INCOME TO LARGE OPERATOR (continued)</u>			
	<u>Existing</u>	<u>Initial</u>	<u>Long-Term</u>
Total Gross Income	\$120,060.00	\$132,677.00	\$132,690.00
Gross income from Allocation:			
	<u>Initial</u>	<u>Long-Term</u>	
	\$123,824.00	\$123,837.00	
Additional gross income from management:	\$8,853.00	\$8,853.00	
Total Costs	\$ 63,016.00	\$ 64,870.00	\$ 65,164.00
Total costs from allocation:	\$64,718.00	\$64,987.00	
Additional costs of improved management:	\$826.00	\$959.00	
Projected Net Income	\$ 57,044.00	\$ 67,807.00	\$ 67,526.00
Net income per animal unit		93.66	92.88
	(724 AUs)	(727 AUs)	
Net Income per AUM		7.70	7.74
	(8,724 AUMs)	(8,724 AUMs)	
Project Increase in Net Income	\$10,763.00	\$10,482.00	

Conclusion

Analysis at the regional and community levels indicate that measurable economic impacts would not result because of three factors: (1) the total livestock industry, including the planning unit, makes up only 3.5 percent of the total personal income in Uintah and Daggett counties, (2) the additional income generated by implementation of the proposal on the Three Corners Planning Unit would account for about 7 percent of the total livestock income and 0.2 percent of the total personal income in the two counties, and (3) the proposed action does not indicate great changes in the level of livestock grazing. The influence, therefore, which the proposal would have on the state and regional economics is not measurable.

The economic analysis of the ranching operations involved categorizing the operations into three classes. The following are the existing and projected long-term net income to each of the three groups.

	<u>Small Operator</u>	<u>Medium Operator</u>	<u>Large Operator</u>
Existing Net Income	\$1,150.00	\$-6,914.00	\$57,044.00
Projected Net Income	2,493.00	-4,543.00	67,526.00
Projected Change	+1,343.00	+2,371.00	+10,482.00

The net income to operators in the planning unit would be about \$469,000.00, which is about 30 percent more than at present.

Population and community services in the 2-county area are not expected to change as a result of the proposal. Employment may increase as a few more jobs result from the slightly increased local income, but the number of jobs is too small to quantify.

RECREATIONAL INCOME ANALYSIS SECTION

Relationship to Proposed Action	Existing Environment, Probable Impacts, and Affected Area
The proposal would allocate 1,614 additional AUMs for deer initially, and 2,229 additional AUMs for deer over the long-term. Potential increase in deer numbers would provide an additional 2,986 deer hunter days over the short term and an additional 4,127 deer hunter days over the long term.	It is estimated that 14,213 hunter days on the planning unit produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County Area. Based on the present estimated value of hunter days of \$49.94, the additional hunter days would provide \$231,172.00 of additional gross income to the area initially, and \$334,798.00 in the long-term on an annual basis.
The proposal would also allocate 2,205 additional AUMs for elk initially and 3,458 additional AUMs for elk over the long term. Potential increase in elk numbers would provide an additional 1,643 elk hunter days over the short-term and an additional 2,577 elk hunter days over the long-term.	An additional \$154,115.00 of net income initially, and \$223,199.00 in the long-term would accrue to the two county area.

Conclusion

The predicted net income for recreation hunting would be increased from \$473,178.00 per year to \$1,031,175.00 (120 percent increase) annually in the two county area.

ENVIRONMENTAL IMPACTS

IMPACTS TO SOCIAL ATTITUDES

This section is included to assess the difficulty that BLM personnel might experience in implementing and administering the proposed action.

SOCIAL ATTITUDES ANALYSIS SECTION

<u>Relationship to Proposed Action</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
The proposal would increase amounts of forage allocated to livestock and change the form of management on allotments.	The introduction of AMPs would cause some ranchers to feel they were being subjected to increased government intervention. For example, the original temporary nonrenewable permits would be given to 17 permittees, but in 20 years the same number of the temporary non-renewable permits would be given to 9 permittees, many of whom are different individuals. The ranchers would continue to believe that federal government employees do not adequately understand grazing, wildlife, soil, and water problems in the planning unit. The local people would have stronger feelings that decisions are being thrust upon them which do not reflect their best interests. The implementation and enforcement of the specification of AMPs or other management tools could meet with opposition from local operators. However, any proposal to improve livestock forage (i.e., chaining or burning) would be strongly supported by permittees.
Increase Forage allocation to Big Game would allow Big Game number to increase as predicted in Animal Life.	The high value which is placed on the ranching way of life would continue, even though very few people are involved in this profession. The ranchers would find the trespass and access demands to use public lands increasing as wildlife numbers increase. Conflicts with off-road vehicle users would also increase.

Conclusion

The proposed action would reinforce negative attitudes towards the federal government.

CHAPTER 4

MITIGATING MEASURES NOT INCLUDED IN THE PROPOSED ACTION

CHAPTER 4

MITIGATING MEASURES

All proposed mitigation is described in Chapter 1 as standard design, construction and operation features.

INTRODUCTION

The purpose of this report is to provide information on the proposed project and its potential impacts on the environment. The project is located in the area of the proposed project and is expected to have significant impacts on the environment.

CHAPTER 5

CHAPTER 5

ANY ADVERSE IMPACTS WHICH CANNOT BE AVOIDED
SHOULD THE PROPOSAL BE IMPLEMENTED

CHAPTER 5 ADVERSE IMPACTS THAT CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

INTRODUCTION

Implementation of the proposed action would result in certain adverse impacts. This chapter summarizes the adverse impacts addressed in Chapter 3 because no mitigating measures were proposed in Chapter 4.

WATER RESOURCES

Construction of 3.5 miles of fence to protect riparian areas along Davenport, Jackson, and Crouse Creeks would increase vegetation cover along these stream channels. Levels of orthophosphate would increase as this vegetation decays. The exact amount of this increase is not known, but levels are currently high and at times exceed state standards. This change would take place gradually for 15 to 20 years.

VEGETATION AND FORAGE

Should the proposal be implemented, grasses would increase and big sagebrush decrease on all areas of the planning unit. Composition and vegetation ground cover would not reach desirable levels on 19 allotments (43,251 acres - 23 percent of the public land in the planning unit).

Possible inadvertent loss of individual plants through disturbance and unknown response of plant species through grazing treatments may occur.

Continuation of spring cattle grazing in the Red Creek allotment would change the improving trend on 4,889 acres to static. The existing grass-shrub mix in the composition would be perpetuated and result in an adverse impact to forage condition for livestock.

ANIMAL LIFE

Winter range for mule deer would decrease in quality in the Clay Basin-Antelope Flat-Goslin Mountain, Willow Creek, Rye Grass and Little Hole allotments as heavy winter use of browse by deer and lighter use of grass by livestock allows grass to increase.

The primary forage constituents for antelope are browse and forbs. The improved grazing management proposed on 2 allotments (Willow Creek and Clay Basin-Antelope Flat-Goslin Mountain, 42,292 acres) would eventually cause a vegetation composition change favoring grass production. This would decrease the quality of the habitat.

Those allotments proposed for improved grazing management would eventually experience a change in vegetation composition to more grass. On allotments supporting sage grouse populations, the quality of the habitat would decline if big sagebrush, an important forage and cover plant for the species, is reduced to less than 20 percent of the vegetation composition.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Regardless of the standard design, construction, and operation features, inadvertent damage could occur to cultural and paleontological resources in

isolated cases scientific information could be partially or totally lost. The amount and significance of loss cannot be accurately predicted.

SOCIOECONOMICS

The introduction of allotment management plans would cause some ranchers to feel they were being subjected to increased government intervention. The ranchers would continue to believe that federal government employees do not adequately understand grazing, wildlife, soil, and water problems in the planning unit. The local people would have stronger feelings that decisions are being thrust upon them which do not reflect their best interests. The implementation and enforcement of the specification of AMPs or other management tools could meet with opposition from local operators.

The ranchers would find the trespass and access demands to use public lands increasing as wildlife numbers increase. Conflicts with off-road vehicle users would also increase.

CHAPTER 6

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT
AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

CHAPTER 6
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT
AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

INTRODUCTION

The allocation of currently unused forage to big game animals, increase in livestock forage allocation and range developments would derive short-term values from the environment, and affect its long-term productivity. In this statement, short-term is considered as 20 years or less after implementation, and long-term is beyond 20 years.

WATER

Sediment yield would be reduced in the long-term. Levels of orthophosphates would increase and remain above state standard levels for the long term.

VEGETATION AND FORAGE

Grass is expected to increase slightly and big sagebrush decrease on all areas of the planning unit. On those allotments where no grazing would be allowed or improved management would continue or be implemented, it is anticipated that a noticeable change could occur within 15 to 20 years. Where existing allotment-wide grazing would continue, or where spring cattle grazing has been introduced, the change may not be apparent for at least 20 years. In the long-term, it appears that the vegetation on the planning unit would lose much of its current value for browsers (such as deer, antelope and sheep) and become more valuable for grazers (such as elk, and cattle). Currently vegetation appears to be providing good ground cover. Very little erosion is occurring and sediment production is low. Vegetation ground cover for watershed protection, would improve, consistent with increases in grass and loss of shrubby species.

Approximately 1,749 acres of vegetation could be disturbed during construction of 71 facilities (fences, reservoirs, springs, etc.). This disturbance of vegetation could cause a very slight increase in erosion and sediment yield for 1 to 3 years, but because of the high productive potential found in the planning unit, disturbed areas would quickly revegetate and return to former conditions. It is not known whether the disturbance would adversely or beneficially affect threatened or endangered plant species because their habitat requirements are unknown in the planning unit.

All 23 acres of riparian vegetation currently in fair condition, would be in good condition within five years. A long term improvement of habitat would result for aquatic wildlife and many species of terrestrial animals.

The long-term improvement of forage conditions and increase of 1,860 AUMs of forage for livestock would help stabilize livestock operation and result in a long-term strengthening of that segment of the local economy.

ANIMAL LIFE

The proposal would convert, in the long-term, the vegetation composition from browse in favor of grass throughout the planning unit (190,536 acres). The long-term impacts to wildlife resulting from this conversion would be varied. Intensive livestock grazing management would generally improve the habitats for most species with certain exceptions. For instance, proposed big

sagebrush spray projects, if properly designed, would benefit both deer and sage grouse at higher elevations. The complete big sagebrush canopy were eliminated, however, the sage grouse habitat would be destroyed. Elk would benefit dramatically over the long-term because elk show a preference to grass ranges and total numbers of elk should become 1,015 in the winter.

The loss of shrubs and forbs would decrease the quality of the habitat for antelope and deer particularly on winter ranges in the planning unit. In the long-term, a decline in deer numbers would be expected. However, antelope are not limited, on this planning unit, by forage as much as by space. No change in antelope numbers is expected.

Improved grazing management including proposed fencing would improve all riparian areas in the long term with a direct benefit to such species as waterfowl, fish, sage grouse, and amphibians.

CULTURAL AND PALEONTOLOGICAL RESOURCES

The destruction of cultural and paleontological remains during construction of range developments or vegetation treatments would result in a long-term loss of scientific information, because present salvage techniques do not insure total information recovery.

VISUAL RESOURCES

Any visual modification from proposed range developments would be long-term in nature, but well within the quality standards established for the visual resource management class areas in which it would occur.

LAND USES

Recreation

With the present hunter success ratio, the planning unit would provide an additional 2,986 deer hunter days and 1,643 elk hunter days over the short-term, and an additional 4,127 deer hunter days and 2,577 elk hunter days over the long-term. As vegetation composition changes from shrubby species to grass in the time beyond 20 years, a decline in deer forage, a loss in deer numbers, and loss in deer hunter days would occur. The magnitude of this loss is unknown.

Livestock Grazing

The implementation and continuation of improved management, including the proposed range developments (sagebrush control, fencing, and water developments), would increase the amount of livestock forage (AUMs) being produced on the planning unit during the short-term. With increased forage available, livestock numbers would also be able to increase. By continuing improved management on the planning unit, the increased amounts of forage and livestock numbers could carry over into the long-term period of productivity.

Improved forage conditions, which would result under improved management systems and the proposed range improvement projects, weaning weights of calves and lambs would increase and provide greater amounts of red meat during the short-term.

Maintaining the no livestock grazing situation on the Rye Grass would result in the long-term loss of livestock production of the planning unit.

SOCIOECONOMICS

The implementation of the proposal would foster more efficient use of the forage resource in the planning unit. This is expected to increase local income from livestock production and recreation. The magnitude is difficult to predict, but it is estimated that net income to the planning unit's ranch operators would be \$468,912.00.

CHAPTER 7

ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES
WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION
SHOULD IT BE IMPLEMENTED

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 ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES
 WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION
 SHOULD IT BE IMPLEMENTED

Irreversible commitment is defined as incapable of being reversed; once initiated, action would continue. Actions committing future generations to continue a similar course may be considered irreversible. Irretrievable is defined as irrecoverable; not retrievable; once used, not replaceable.

Table 7-1 is a list of irreversible and irretrievable commitments for the proposed action.

TABLE 7-1

Irreversible and Irretrievable Commitment of Resources

Item of Use	Reason for Commitment	Commitment	
		Irreversible	Irretrievable
Soil	Erosion resulting in loss of soil during construction of range developments.	yes	yes
Water	Loss of water quality through build up of orthophosphate.	no	yes
Vegetation	Long Term Annual Consumption of 19,433 AUMs of forage for livestock.	no	yes
	Long Term annual consumption of 16,770 AUMs for forage for wildlife.	no	yes
	Short Term disturbance of 1,751.2 acres of vegetation.	no	yes
	Possible loss of an unknown number of individual threatened or endangered plants.	no	yes
	Occupation of 91.2 acres by range developments.	no	yes
Animal Life	Loss of habitat from the vegetation conversion from browse to grass. Species affected by this commitment include deer and antelope winter ranges and sage grouse areas.	yes	no

TABLE 7-1 (concluded)

Item of Use	Reason for Commitment	Commitment	
		Irreversible	Irretrievable
Cultural Resources	Inadvertant damage of sites by construction.	yes	yes
Paleontological Resources	Inadvertant loss of fossil remains.	yes	yes
Visual Resources	Visual modification from range developments.	yes	yes
Socio-economics	Human resources, fuel, and materials used to implement the proposal. Once made, the expenditures of these resources would preclude their use for other projects.	yes	yes

CHAPTER 8

CHAPTER 8 ALTERNATIVES TO THE PROPOSED ACTION

A. INTRODUCTION

Four alternatives to the proposed action are addressed in this chapter. They are: 1) livestock grazing at full forage production, 2) continuation of present range management and level of forage allocation (no action), 3) continue existing management with a 50 percent reduction from the proposed level of livestock forage allocation, and 4) elimination of all livestock grazing from public land in the planning unit. Appendix VIII-1 provides the rationale for the forage allocation for each of the alternatives. The methodology for determining forage production is described in Appendix I-4.

In this chapter, a description of each alternative is followed by an impact section. The impact section is structured in the same manner as Chapter 3, except that the analysis is not shown in as much detail and only the magnitude of the impacts are shown. Like Chapter 3, uses the existing environment (Chapter 2) as a base for impact analysis. Impact assessment was conducted as described for Chapter 3. The four alternatives follow as sections B through E. Section F is an impact summary table which compares the alternatives with the proposed action.

B. LIVESTOCK FORAGE ALLOCATION FOR GRAZING AT FULL FORAGE PRODUCTION

1. Description of Alternative

a. Purpose and Objective

The planning unit objectives for this alternative and the allotments to which they apply are shown in Tables 1-4 and 1-5.

The purpose of including this alternative is to provide a comparison of the impacts of an increased level of livestock allocation.

b. Forage Allocation

The initial livestock allocation would be 25,993 AUMs which is the inventoried number of AUMs (see Appendix I-4 for a discussion of inventory methods). The estimated 8,350 AUMs of non-competitive big game forage would be allocated to big game. It would be assumed that by grazing at the inventoried level of forage production, a sustained yield of livestock production could be maintained.

Within 20 years, approximately 1,864 AUMs of forage production could result from improved management (10 percent increase in inventoried production) and about 7,317 additional AUMs would be provided from sagebrush and pinyon-juniper control. These additional AUMs would be allocated to livestock as they become available.

The existing use and alternative allocation of forage are summarized shown on Table 8-1 and are listed for each allotment in Appendix VIII-2.

Adjustments in the level of livestock use would be made as described in Chapter 1, with the exception that recommendations for reductions in big game numbers would be made to the Utah Big Game Board should the combined utilization of key species by livestock and big game exceed 60 percent.

ALTERNATIVES

TABLE 8-1

Summary of Existing Forage Use and Alternate Forage Allocation^a
For Livestock Grazing at Full Forage Production

Alternative Action Component and Subcomponent	Existing Livestock and Big Game Grazing Situation						Alternative Forage Allocation (AUMs)			
	Forage Production AUMs	Present Livestock Use ^b				Est. Current Wildlife Use (AUMs)	Initial		Long-Term (20th Year)	
		Kinds	No.	AUMs Pref. ^c	AUMs Actual		Livestock ^d	Big Game	Livestock ^e	Big Game
<u>Continuation of Existing Management</u>	10,947	Shp. Cat.	10,055 1,911	5,853	5,394	2,477	9,233	1,714	11,766	1,714
Continue Allotment-wide Grazing (17 allotments)	3,382	Shp. Cat.	10,055 688	1,406	965	780	2,901	481	3,448	481
Spring and Fall (6 allotments)	2,046	Shp.	7,365	695	263	354	1,820	226	2,241	226
Spring, Summer, Fall (7 allotments)	890	Shp. Cat.	2,690 253	437	428	259	742	148	2,868	226
Spring, Summer (2 allotments)	446	Cat.	435	274	274	167	339	107	868	148
Continue Existing Improved Management (4 allotments)	7,565	Cat.	1,223	4,447	4,429	1,697	6,332	1,233	8,318	1,233
Rest-Rotation (2 allotments)	2,265	Cat.	175	552 ^d	1,201	731	1,677	588	1,985	588
Deferred Rotation (1 allotment)	2,359	Cat.	398	1,446	1,021	646	1,906	453	3,133	453
Deferred Rotation and Rest Rotation (1 allotment)	2,941	Cat.	650	2,449	2,207	320	2,749	192	3,200	192
<u>Implementation of Improved Management (20 allotments)</u>	23,396	Shp. Cat.	7,023 3,140	10,048	8,558	8,581	16,760	6,636	23,408	6,636
Spring, Summer, and Fall, with spring deferment (17 allotments)	19,210	Cat.	3,140	8,012	7,188	7,986	12,944	6,266	18,426	6,266
Spring and Fall, with Spring deferment (3 allotments)	4,186	Shp.	7,023	2,036	1,370	595	3,816	370	4,982	370
TOTAL	34,343	Shp. Cat.	17,078 5,069	15,901 ^c	13,952	11,058	25,993	8,350	35,174	8,350

^aAppendix VIII-1 contains the details of the existing forage use and proposed forage allocation; it also contains additional explanatory footnotes.

^bNo. = Number of animals, Cat. = cattle, Shp. = sheep, Pref = Preference, Actual = 5 year average use.

^cDoes not include non-renewable allocation of 1,672 AUMs.

^dIncludes all inventoried forage (see Appendix I-5).

^eIncludes use of 1,864 AUMs attributable to forage response to management and 7,317 AUMs from sagebrush and pinyon-juniper control in addition to all inventoried forage.

c. Components of the Alternative Action

The alternative action is divided into two major components: (1) Continuation of Existing Management, and (2) Implementation of Improved Management. It is further divided into sub-components (shown on Table 8-1). Sub-components are divided into groups of like allotments which would be managed in a common fashion (see Appendix VIII-2).

Allotments would be managed by applying grazing and resting treatments. Treatments would be designed to promote the desired level of livestock use consistent with sustained yield of livestock forage.

Major criteria considered in selecting grazing and resting treatment include:

1. Livestock. Seasons of use, numbers, kind of livestock, food preferences, habits, and husbandry needs, were used to determine the effect of a management upon livestock operations.
2. Vegetation. Conditions, production, and phenological requirements were evaluated to determine the effects that grazing and rest treatments would have upon growth and reproduction of key plant species.
3. Climate. Temperature, precipitation patterns were evaluated to determine their effects upon the management's viability.
4. Land. Ownership patterns were considered in order to coordinate the use of public lands with grazing on private land, state land, and Forest Service land.

Utilization of up to 60 percent of the key species would be allowed, which is generally classified as moderate (BLM Manual 4412). The utilization limit, together with season of use considerations is expected to provide for the phenological needs of the key species (unpublished Range Study Data, 1967-1974 Vernal District). If utilization exceeded 60 percent, recommendations to reduce big game numbers would be made to the Utah State Big Game Board.

The alternative would combine 53 allotments into 39 allotments for administrative and operational purposes. One AMP would be prepared for each allotment combination to ensure a common management approach. (One combination, Dry Creek-South Pot Creek-Wild Mountain, is now formally combined in the existing AMP.)

Required developments are summarized on Table 8-2 and a detailed listing is found in Appendix VIII-3. Sagebrush control would be done by helicopter spraying with a water 2,4-D solution. Chapter 3 provides a detailed analysis of the expected impacts. Monitoring would be conducted as shown on Page 8-3.

Continuation of Existing Management

This component of the alternate action consists of two subcomponents and would affect 19 allotments and 51,513 acres of public land in the planning unit.

TABLE 8-2
Summary of Required Developments^a

Components and Subcomponent	Developments							
	Water Pipelines	Water Troughs	Storage Tanks	Spring Development	Reservoirs	Fences	Sagebrush Control	Pinyon-Juniper Control
<u>Continuation of Existing Management</u> (19 allotments)	8 (9 mi.)	21	5	2	11	0	15,942 ac.	642 ac.
<u>Implement Improved Management</u> (20 Allotments)	12 (19 mi.)	41	4	18	26	42.5 mi.	31,835 ac.	3,058 ac.
<u>Total</u> (39 allotments)	20 (28 mi.)	62	9	20	37	42.5 mi.	47,777 ac.	3,700 ac.

^aNew water sources would be required to allow increases in the numbers of livestock on the range.

Allotment-Wide Grazing

Present allotment-wide grazing management would continue on 11,975 acres of public land on 15 allotments (see Appendix VIII-2). These allotments are divided into three subcomponents based on season of use as follows:

Spring and Fall (May and June and September through October	-	6 allotments
Spring-Summer-Fall (begin in May or June and continue into October or November)	-	7 allotments
Spring-Summer (begin in June through September 15)	-	2 allotments

On these allotments, livestock would be allowed to graze an entire allotment during the designated grazing season. BLM's management opportunities are limited because private lands within allotments contribute 63 to 98 percent of the total forage produced. (See Figure 1-6 shows a typical allotment-wide grazing schedule.)

Existing Improved Management Systems

Existing improved management would continue on 39,538 acres of public land in four allotments now under AMPs as shown in Appendix VIII-2. Two allotments are managed under rest-rotation grazing systems, one allotment is under a deferred-rotation grazing system, and one allotment is under a combined rest rotation and deferred rotation grazing system (see Figure 1-6). Pastures are generally equally divided by forage production. Grazing treatments are rotated so that at the end of each cycle each pasture would have received equal treatment, that is, all pastures would be grazed and rested the same amount of time. The season of grazing on Red Creek Allotment would be changed to October 15 to June 5.

Implementation of Improved Management

This component of the alternative action would involve 20 allotments and 139,023 acres of public land in the planning unit (see Appendix VIII-2). A total of 17 allotments would receive spring, summer, and fall grazing. Grazing during the spring would be regularly deferred. Three allotments would receive spring and fall grazing with regular spring deferrment.

The season of use for Rye Grass would change to June 5 to October 1 and Taylor Flay-Watson and Bridgeport would be October 15 to June 5. All others would maintain the existing seasons.

d. Monitoring and Study Programs

All components of the proposed action would be monitored to determine if management objectives (see Tables 1-4 and 1-5) were being met. Monitoring would be as described in Chapter 1 with the exception that wildlife, riparian, and aquatic studies would not be conducted.

e. Standard Design, Construction, and Operation Features

The same measures described in Chapter 1 would be applicable as standard design, construction, or operation procedures for the range developments required for this alternative. Chaining of pinyon-juniper in this alternative, however, is not one of the actions of Chapter 1 and would require the following project design restrictions:

1. Physical site factors; such as slope, exposure, soil depth, and erosion, and seeding susceptibility would be criteria use in selecting sites.
2. Configuration and patterns would be in conformance with visual resource management guidelines.
3. Areas within 200 feet of roads would not be chained.

f. Development and Maintenance Costs

Development of livestock grazing at full forage production would incur increased costs associated with implementation and management. The range user would also have increased costs associated with maintenance of required range developments such as fences, and water developments other than pipelines and springs. The additional BLM costs would primarily be encountered in the following areas:

1. Administrative costs of AMP development and on-the-ground management.
2. Design and construction of proposed range developments, including vegetative treatments.
3. Maintenance of range developments.
4. Livestock use supervision, monitoring, and evaluation of the alternative once implemented.

Construction of required range developments and completion of sagebrush and pinyon-juniper control operations would cost an estimated \$923,862 as shown on Table 8-3. Annual maintenance of existing and required range developments, shown on Table 8-4, would cost an estimated \$58,500 for BLM and \$88,000 for the livestock operators. Costs figures for other items would be dependent on rates of implementation.

g. Implementation

It would be the goal to attain the management objectives within a period of 20 years after implementation of the alternative. It is anticipated that implementation would be accomplished over a 5-year period following filing of the final environmental statement. Stocking levels shown in Appendix VIII-2 would be implemented as forage is shown to be available on each allotment. Two new positions in BLM's Vernal District would be required to accomplish the

TABLE 8-3

Estimated Costs of Required Range Developments
and Sagebrush and Pinyon-Juniper Control

Item	Quantity	Estimated Acres Surface Disturbance	Estimated Unit Cost	Total
Fence	42.5 mi.	85	\$3,200 per mi.	\$136,000
Spring Development	20	5	\$1,000 each	\$ 20,000
Water Troughs	62	12	\$ 600 each	\$ 37,200
Water Pipeline	28 mi.	34	\$2,000 per mi.	\$ 56,000
Storage Tanks	9	2	\$2,000 each	\$ 18,000
Reservoirs	37	12	\$6,000 each	\$222,000
Sagebrush Control	47,777 ac.	47,777	\$6 per ac.	\$286,662
Pinyon-Juniper Control	3,700 ac.	<u>3,700</u>	<u>\$40 per ac.</u>	<u>\$148,000</u>
Total		51,627 ^a		\$923,862

^aDue to rounding of numbers, this figure will appear as 51,634.2 when columns showing a break down by allotment are totaled.

TABLE 8-4

Estimated Costs for Maintenance of Range Developments

	Estimated BLM Expense	Estimated Operator Expense	Total
Annual Maintenance Cost of Existing Range Developments	\$10,000	\$15,000	\$ 25,000
Additional Maintenance Costs of Required Range Developments	\$48,500	\$73,000	\$121,500
Total	\$58,500	\$88,000	\$146,500

implementation within this time span. An implementation schedule is presented on Table 8-5.

h. Administration

The alternative would be administered and managed through standard BLM operating procedures as proposed in Chapter 1.

The BLM would also make adjustments in the range management program during drought or other emergencies. In no case, would forage utilization by livestock be allowed to exceed an average of 60 percent of key species.

2. The Environmental Impacts of the Alternative

a. Introduction

Climate, air quality, topography, and geology are not discussed because no major impacts would occur to these resources. Other resource components are introduced and analysis procedures and assumptions given for each resource component.

TABLE 8-5

Implementation Schedule for the Livestock Grazing
at Full Forage Potential Alternative
in the Three Corners Planning Unit

Year	Action
1	Continue present grazing on 19 allotments.
	Continue present livestock management on 19 allotments and complete developments, sagebrush and pinyon-juniper control on these allotments. Developments would be 9 miles of water pipeline, 21 water troughs, and 5 storage tanks. Sagebrush control would be accomplished on 15,942 acres and pinyon-juniper control on 642 acres.
2	Write AMPs for 20 allotments for improved management.
3-5	Implement improved management on 20 allotments. Order of implementation would be determined by annual funding levels and the length of time required to complete specific proposed range developments and sagebrush control. Developments would include 18 spring developments, 26 reservoirs, 19 miles of pipelines, 41 water troughs, 4 storage tanks, and 46 miles of fence. Sagebrush control would be accomplished on 31,835 acres and pinyon-juniper control on 3,058 acres.

Impacts on Soils

Full forage production and related improvements were analyzed to determine the extent to which they would affect the soil resource. Included are sediment yield, erosion condition, soil salinity, and seeding suitability.

Anticipated changes in vegetation ground cover, composition, and intensity of use are factors influencing impacts to soils. The soil resource itself is basic to vegetation productivity, water yield and quality, and wildlife carrying capacity.

Because the planning unit currently has few erosion and other soil problems, it is expected that the impacts to the soil resource would be minor. The analysis indicates that adverse impacts would occur only on small, localized areas, sediment yield would be reduced by about 4 acre-feet annually, and soil compaction by livestock would not change significantly.

Due to the small magnitude of impacts expected, it is difficult to predict measurable changes in existing erosion conditions or water salinity contribution for the soils of the planning unit. Impacts of increased erosion condition and salt laden sediment would be expected in the short-term followed by decrease in both of those categories after 3 to 5 years.

SOILS

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected Area

SEDIMENT YIELD

Existing improved management is proposed to continue on Red Creek, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments, comprising 39,538 acres of public land. Grass composition is expected to increase slightly and browse is expected to decrease. Increased vegetation ground cover would help improve watershed conditions.

Implementation of improved grazing management and periodic spring rest is proposed on 20 allotments that comprise 139,023 acres of public land. Grass composition is expected to increase slightly and browse to decrease. Increased vegetation ground cover would help maintain or improve watershed conditions.

The proposed spraying of 47,777 acres of sagebrush with 2,4-D on 28 allotments and chaining of 3,700 acres of pinyon-juniper on six allotments is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur until the suppressed grass species could respond to the reduced competition from brush.

The proposal to develop 20 springs, install 28 miles of pipeline, 9 storage tanks, 62 troughs, and construct 37 reservoirs would provide additional watering areas for livestock. Bare soil would be exposed temporarily on 68.4 acres.

Decreases in sediment yield would contribute to meeting the objective of maintaining or improving watershed condition, except in the short-term on sagebrush control areas and near range developments.

Sediment yield currently ranges between 0.1 and 0.5 acre-feet per square mile per year. The vegetation composition is expected to change slightly in favor of grass. Ground cover of vegetation would increase. Sediment yield could decrease by a total of 0.80 acre-feet annually from (0.20 to 0.185 acre-feet per square mile on Red Creek and Hoy Mountain allotments, from 0.15 to 0.135 acre-feet per square mile on Ruple Cabin Allotment and from 0.14 to 0.13 acre-feet per square mile per year on Dry Creek-South Pot Creek-Wild Mountain Allotment) (PSIAC, 1968; Branson, 1972). The changes would occur over the next 15 to 20 years.

Sediment yield currently ranges between 0.1 and 1.0 acre-feet per square mile per year. The vegetation composition is expected to change slightly in favor of grasses and ground cover of vegetation would increase. Sediment yield could decrease over the next 15 to 20 years by as much as 3.2 acre-feet annually from an average of 0.20 to 0.185 acre-feet per square mile per year (PSIAC, 1968; Branson, 1972). All allotments would be affected.

The 51,477 acres proposed for treatment are currently yielding sediment at a rate of 0.1 to 0.5 acre-feet per square mile per year. There would be a slight increase in soil loss (PSIAC, 1968) for 1 to 3 years until the former ground cover density returns. The loss would be less on sprayed areas than on chained areas (Sturges, 1975).

Current annual sediment yield varies between 0.1 and 1.0 acre-feet per square mile. Increased sediment yield from the 68.4 disturbed acres would be 0.011 acre-feet (17.39 cubic yards) annually for 1 to 3 years (PSIAC, 1968).

EROSION CONDITION

The proposed spraying of 47,777 acres of sagebrush with 2,4-D on 28 allotments and chaining of 3,700 acres of pinyon-juniper on six allotments is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur until the suppressed grass species could respond to the reduced competition from brush.

Maintaining the current erosion condition would contribute to meeting the objective to maintain or improve watershed condition.

The 51,477 acres proposed for treatment are currently in slight erosion condition. The erosion condition would increase slightly for 1 to 3 years until the former ground cover density returns. The impact would be less on the sprayed area than on the chained area (Sturges, 1975). The change would not be enough to be measured.

SOIL SALINITY

Improved grazing management and periodic rest during the growing season are proposed for the Clay Basin-Antelope Flat-Goslin Mountain Allotment. The proposal would increase grass and decrease brush composition in the vegetation cover of the allotment and would help improve current watershed conditions.

The proposal to construct 2 miles of pipeline, 16 water troughs, and 1 storage tank on the Clay Basin-Antelope Flat-Goslin Mountain Allotment would result in removal of vegetation on a maximum of 14.54 acres of slightly saline soils.

Soils on 15,520 acres within this allotment are slightly saline. The expected increase of grass in the composition would slightly decrease salt-laden sediment yield within 20 years.

The volume of salt laden sediments entering stream channels would increase slightly for 1 to 3 years. The exact amount of salinity is unknown, but the disturbed area amounts to only 0.0009 percent of the saline soils in the allotment. Salt laden sediment yield is not expected to increase more than 5.56 cubic yards annually (PSIAC, 1968).

SEEDING SUITABILITY

The proposal to spray 47,777 acres in 28 allotments with 2,4-D and chain 3,700 acres in six allotments would increase the amount of grass in the vegetation composition. The treatment would reduce dense stands of sagebrush and pinyon-juniper and make forage available to livestock.

The suitability of soils for vegetation manipulation, as rated by seeding suitability in the areas proposed for sagebrush and pinyon-juniper control, would aid in meeting the objectives of improving or maintaining livestock forage and watershed condition.

Limitations are slight for vegetation manipulation on all areas proposed for treatment. The 480 acres proposed for treatment on Hoy Mountain would be a maintenance spraying with no reduction in ground cover anticipated (BLM, 1976). The remaining 47,297 acres could probably be treated successfully, but a slight temporary reduction in ground cover is expected for 1 to 3 years (BLM, 1976).

Impacts on Water Resources

The analysis of the impacts caused by full forage production and related developments focuses on (1) water quantity and (2) water quality.

The environmental impact analysis indicates that the alternative would not markedly alter the water consumed by livestock in the planning unit and new water developments would distribute the water supply more evenly than now occurs.

Chemical constituents of the surface waters are not likely to be changed by the proposal since the chemical composition is dependant to a large extent on source of water and the geological substrata. Changes in erosion would not be great enough to produce a noticeable change in the chemical composition of the water. Most coliform contamination from livestock comes from use in or directly adjacent to the stream, so that downstream coliform levels would increase during periods of grazing, followed by a decline when livestock are removed.

WATER RESOURCES

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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WATER QUANTITY

Existing improved management is proposed to continue on Red Creek, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments, comprising 39,538 acres of public land. Grass composition is expected to increase slightly and shrub composition is expected to decrease. Increased vegetation ground cover would help improve watershed conditions.

Improved grazing management and periodic rest is proposed on 20 allotments that comprise 139,023 acres of public land. The composition of grass is expected to increase slightly and sediment yield to decrease slightly.

It is proposed to develop 20 springs, install 28 miles of pipeline, 9 storage tanks, 62 troughs, and construct 37 reservoirs to provide additional watering areas for livestock. The water to be used in the proposed improvements originates from springs whose water does not leave the planning unit.

The proposal to spray 47,777 acres in 28 allotments with 2,4-D and chain 3,700 acres in six allotments would increase the amount of grass in the vegetation composition and would reduce dense stands of sagebrush and pinyon-juniper and make forage available to livestock. Ground cover would be reduced temporarily on 51,477 acres proposed for treatment.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to change minimally, only a slight decrease in water yield would occur over the next 15 to 20 years (Branson, 1972). All four allotments would be affected.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to change minimally, only a slight decrease in water yield would occur over the next 15 to 20 years (Branson, 1972). All 17 allotments would be affected.

Current consumptive water use on the planning unit is about 23 acre-feet annually. This amounts to 0.02 percent of the available water. Because the water proposed for use in the improvements does not currently leave the planning unit, the improvements would have no impact on total water yield.

The vegetation cover on 51,477 acres is expected to decrease slightly and water yield to increase for 1 to 3 years. The exact amount of increased water yield is not known, but is expected to be minimal.

WATER QUALITY

Continued improved grazing management is proposed on Red Creek and Ruple Cabin allotments, comprising 20,558 acres of public land. The composition of grass is expected to increase slightly and sediment yield to decrease slightly.

Implementation of improved grazing management and periodic spring rest is proposed on 20 allotments that comprise 139,023 acres of public land. Composition of grass is expected to increase slightly and sediment yield to decrease slightly.

Currently three streams flow through these two allotments. The sediment carried by these streams would be reduced. The exact amount is not known (PSIAC, 1968; Branson, 1972). This reduction would occur gradually within 15 to 20 years.

The sediment load of 11 streams which flow through 11 of the 20 allotments would be reduced gradually over a period of 15 to 20 years. The exact amount of reduction is not known (PSIAC, 1968; Branson, 1972).

Impacts on Vegetation

This section analyzes the anticipated impacts which the alternative would have on vegetation and forage in the planning unit. Impacts on vegetation and forage are interrelated with animal life, watershed, visual resources, and land use (livestock grazing), and could be the cause of impacts on these resources.

Summary of impacts identified in this section:

Twenty-three acres of riparian vegetation now rated to be in fair condition would remain in fair condition.

A general change in vegetation composition from woody species (shrubs and trees) to grass could be expected under this alternative. Three thousand seven hundred acres of pinyon-juniper would change to grass.

Grass is expected to increase and big sagebrush decrease on about 170,103 acres over a period of about 20 years.

Ground cover would not reach desired levels (>25 percent ground cover) on 10 allotments.

The affects the alternative would have upon threatened and endangered species is unknown. For the most part, their responses to specific changes cannot be predicted because their habitat requirement are unknown.

Forage production is expected to increase by 9,181 AUMs over a 20 year period.

Forage condition would improve from fair to good on 31,069 acres of the planning unit.

Should this alternative be implemented, the following trend would be expected for the next 15 to 20 years: improving, 75,973 acres; static, 114,563 acres; declining, 0 acres.

VEGETATION

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

TYPES AND SUBTYPES
(including Riparian Vegetation and Condition)

For the alternative to increase livestock grazing to full forage production, the following is proposed: implement improved grazing management for 20 allotments; improved grazing management would continue on four allotments; 47,777 acres of sagebrush would be controlled; and 3,700 acres of pinyon-juniper would be controlled.

The following vegetation types are present in the planning unit:

Type	Acres
Sagebrush	80,816
Pinyon-juniper	80,795
Conifer	14,565
Grass	5,324
Mountain shrub	5,378
Broadleaf trees	1,908
Greasewood	999
Riparian	751
Total	190,536

The 3,700 acres of pinyon-juniper type that would be chained and seeded would change to grass.

Implementation of improved grazing management on the Little Hole and Sears Canyon-Marshall Draw allotments would not change the vegetation composition on stream banks on Jackson Creek or Sears Creek. Objectives identified for riparian vegetation to maintain the good condition would be met.

Of the 614 acres of good condition riparian vegetation in the implement improved grazing management allotments, the regular spring deferment should allow riparian vegetation to remain in good condition. The 23 acres of fair condition riparian vegetation would not improve since livestock grazing would continue (Ames, 1977).

The 728 acres of riparian vegetation in good condition would be maintained, and the 23 acres in fair condition would not be improved, 3,700 acres of pinyon-juniper vegetation type would be changed to grass.

COMPOSITION AND VEGETATION GROUND COVER

Continuation of allotment-wide grazing, with use not to exceed 60 percent on key species, on 15 allotments would perpetuate the current use on desirable forage species during the critical periods for growth and reproduction.

No change is expected in vegetation ground cover and composition on the 15 allotments where use of desirable forage species during the critical periods for growth and reproduction would continue. This use has been going on for several years and the mix of plants in the composition have reached an equilibrium.

Continuation and implementation of improved grazing management on 24 allotments would provide periodic rest for desirable vegetation during the growing season.

Regular rest would favor growth of desirable vegetation on 24 allotments, and vegetation ground cover would increase to or remain over 25 percent on all allotments. Composition of desirable vegetation would reach proposed levels, except on three allotments (Hoy Mountain, Gadson, and Offield Mountain) where composition of big sagebrush, or other desirable shrubs, would remain less than 20 percent.

The following listing shows which allotments in the planning unit would not meet vegetation ground cover and composition objectives after the alternative is implemented.

Allotments where composition of desirable plant species would not reach desirable levels (>60 percent composition) under this alternative:

Log Cabin
Mame's Hole-Bear Hollow
Beaver Dam

VEGETATION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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COMPOSITION AND VEGETATION GROUND COVER (continued)

Allotments where vegetation ground cover would remain at less than desirable levels (<25 percent ground cover) under this alternative:

Gadson Draw-Gerber Spring
Highway
Natural Lake
Smokem-up
Bates Spring
Blair Basin
East Cow
Mame's Hole-Bear Hollow
Cove
West Cow

Should the alternative be implemented, objectives for vegetation ground cover and composition would be met on 21 allotments (167,881 acres--88 percent of public land in the planning unit).

KEY SPECIES

For the alternative to increase livestock grazing to full forage production, the following is proposed: improved grazing management for 20 allotments, improved grazing management would continue on four allotments; 47,777 acres of sagebrush would be controlled; and 3,700 acres of pinyon-juniper would be controlled. All components of the alternative would affect key species.

Eleven key species from three families (Poaceae, Asteraceae, and Rosaceae) have been identified for the Three Corners Planning Unit. Seven key species are grasses: bluebunch wheatgrass, Columbia needlegrass, crested wheatgrass, Indian ricegrass, Letterman needlegrass, needle-and-thread grass, and western wheatgrass. Four key species are shrubs: antelope bitterbrush, big sagebrush, black sagebrush, and true mountain mahogany.

Probable responses of key species to existing and proposed grazing management are:

	<u>Grass Key Species</u>	<u>Shrub Key Species</u>
<u>Continue Allotment-Wide Grazing</u>		
Spring-fall	static ^a	static except for areas of big sagebrush control
Spring-Summer-Fall (begin in May or June)	static	static except for areas of big sagebrush control
Spring-Summer (begin in June)	static	static except for areas of big sagebrush control
<u>Continue Existing Improved Management</u>		
Rest Rotation and Deferred Rotation	increase	increase except for areas of big sagebrush control

VEGETATION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area	
	Grass Key Species	Shrub Key Species
<u>KEY SPECIES (continued)</u>		
<u>Implement Improved Grazing Management</u>		
Spring, Summer, and Fall With Periodic Spring Deferment	increase	static except for areas of big sagebrush control
Spring-Fall With Periodic Deferment	increase	static or decrease ex- cept for areas of big sage- brush control

^a"Static;" it is realized that vegetation types or communities may never reach or maintain a truly static condition, for our purposes, it means a state of relative stability.

^bIn areas treated for sage control, grass would increase.

Improved grazing management would allow periodic rest from grazing and would improve distribution of livestock and reduce grazing pressure, thereby improving conditions for key species. In areas where big sagebrush and pinyon-juniper is controlled, key species and other desirable plants would establish and stabilize within 5 years after treatment. Predicted key species cover, composition, and distribution should be realized in 15 to 20 years.

References for predicted response of key species: Stoddard and Smith, 1955; Johnson, 1965; Heady, 1975; Dillon and Wallenmeyer, 1966; BLM, 1976; Morris, 1934; Ratliff, 1972.

THREATENED AND ENDANGERED SPECIES

Threatened and endangered plants would be protected by measures which are a required standard of this proposal. Special surveys would be conducted prior to construction of range developments and vegetation manipulation, alteration of plans would be required if threatened and endangered species or their critical habitat could be affected.

The following threatened or endangered species have been identified in the planning unit. Penstemon acaulis (Scrophulariaceae), a candidate threatened species, and Parthenium ligulatum (Asteraceae) and Oxytropis obnapiformis (Fabaceae), proposed endangered species were collected near the mouth of Jessie Ewing Canyon in the Bridgeport Allotment in 1978. Arabis demissa variety languida (Brassicaceae), a candidate threatened species, was collected on the Antelope Flat-Goslin Mountain-Clay Basin Allotment in 1978. Cryptantha stricta (Boraginaceae), a candidate threatened species, is believed to be widespread in the Three Corners Planning Unit. However, it has been recommended by the BLM Vernal District Botanist that this species be removed from the candidate threatened species list. No available record verifies the occurrence of any other proposed, candidate or officially listed threatened or endangered plant species within the Three Corners Planning Unit (Neese, 1978 and England, 1979).

ALTERNATIVES

VEGETATION (continued)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

THREATENED AND ENDANGERED SPECIES (continued)

Construction disturbance could be the specific cause of impacts. The following is a list of allotments with corresponding acres of potential disturbance from proposed range developments on which threatened and endangered species could be impacted:

Allotment	Acres
Bowery Spring	701
Gadsen Draw-Gerber Spring	556.78
Highway	336.33
McKee Spring	871.93
Natural Lake	540
Bates Spring	300.33
East Cow	80
Mail Draw	500
Hoy Mountain	480
Red Creek	1,720.45
Dry Creek-South Pot Creek-	
Wild Mountain	7,286.18
Ruple Cabin	3,229.14
Bridgeport	3,868.56
Clay Basin-Antelope Flat-	
Goslin Mountain	9,373.54
Gadson	864.66
Hatch Cove	2,429.24
Hoy Flat	1,481.91
Jackson Draw-Crouse Canyon-	
Dry Hollow	541.93
Little Hole	668.5
Offield Mountain	1,024.25
Pot Creek	4
Rye Grass	30.41
School Bus	1,004.58
Sears Canyon-Marshall Draw	446.05
Serviceberry Spring	564.33
Shiner	659.85
Taylor Flat-Watson	3,403.17
Warren Draw	248.75
Willow Creek	2,791.16
Bealer Basin-Diamond Gulch-	
Diamond Spring	2,715.33
Cooper Draw	1,567.24
Davis Draw-Crouse Reservoir-	
Lambson	1,344.6
Total	51,634.2

A survey of potential habitat for threatened or endangered species (candidate, proposed or officially listed) would be conducted prior to taking any action that may affect these species. Should BLM determine that an officially listed species would be affected, formal consultation with the U.S. Fish and Wildlife Service would be initiated.

Though surveys would be conducted to identify critical habitat and location of individual threatened and endangered plants, a possibility remains that inadvertent loss of some individual plants may occur.

It may be impossible to locate all individuals in a population. Response characteristics of these threatened and endangered plant species cannot be identified at this time.

FORAGE PRODUCTION

For the alternative to increase livestock grazing to full forage production, the following is proposed: improved grazing management for 20 allotments; improved grazing management would continue on four allotments; 47,777 acres of sagebrush would be controlled; and 3,700 acres of pinyon-juniper would be controlled.

Spraying sagebrush and chaining pinyon-juniper would result in increased production within 5 years on areas treated. The chaining or spraying would suppress the sagebrush or pinyon-juniper and release moisture and nutrients for greater production of desirable forage species (Heady, 1975). The improved grazing management is designed or would be designed to allow regular rest from grazing during periods critical to growth on desirable forage plants which would result in greater forage production (Morris, 1934, Ratliff, 1972).

VEGETATION (continued)

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaFORAGE PRODUCTION (continued)

The following shows the expected forage production by allotment within 20 years after implementing the alternative:

Allotments	Forage Production (AUMs)	
	Present	Expected (20 years)
Bowery Spring	638	736
Gadsen Draw-Gerber Spring	494	572
Highway	200	247
McKee Spring	413	535
Natural Lake	275	351
Smokem-up	26	26
Bates Spring	112	154
Beaver Dam	135	135
Blair Basin	58	58
East Cow	104	118
Log Cabin	108	108
Mail Draw	170	240
Mame's Hole-Bear Hollow	203	203
Cove	420	420
West Cow	26	26
Hoy Mountain	781	848
Red Creek	1,484	1,725
Dry Creek-South Pot Creek-		
Wild Mountain	2,359	3,586
Ruple Cabin	2,941	3,392
Bridgeport	794	1,374
Clay Basin-Antelope Flat-		
Goslin Mountain	4,915	6,551
Gadson	340	493
Hatch Cove	642	1,035
Hoy Flat	752	1,001
Jackson Draw-Crouse Canyon-		
Dry Hollow	1,704	1,899
Little Hole	1,361	1,524
Offield Mountain	580	780
Pot Creek	191	205
Rye Grass	508	526
School Bus	293	460
Sears Canyon-Marshall Draw	1,465	1,628
Serviceberry Spring	265	366
Shiner	353	478
Taylor Flat-Watson	2,141	2,788
Warren Draw	965	1,084
Willow Creek	1,941	2,500
Bealer Basin-Diamond Gulch-		
Diamond Spring	2,354	2,953
Cooper Draw	780	1,071
Davis Draw-Crouse Reservoir-		
Lambson	1,052	1,328
Total	34,343	43,524

The objective to increase forage production by 1,860 AUMs in the planning unit would be exceeded.

VEGETATION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area																																																												
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<table> <tr> <th>Allotment</th><th>Acres That Would be Improved</th></tr> <tr> <td colspan="2"><u>Continue Allotment-Wide Grazing</u></td></tr> <tr> <td>Highway</td><td>145</td></tr> <tr> <td>McKee Spring</td><td>60</td></tr> <tr> <td>Natural Lake</td><td>2</td></tr> <tr> <td>Bates Spring</td><td>130</td></tr> <tr> <td>East Cow</td><td>80</td></tr> <tr> <td colspan="2"><u>Continue Existing Improved Management</u></td></tr> <tr> <td>Hoy Mountain</td><td>444</td></tr> <tr> <td>Dry Creek-South Pot Creek-Wild Mountain</td><td>5,270</td></tr> <tr> <td>Ruple Cabin</td><td>2,167</td></tr> <tr> <td colspan="2"><u>Implement Improved Grazing Management</u></td></tr> <tr> <td>Bridgeport</td><td>2,096</td></tr> <tr> <td>Clay Basin-Antelope Flat-Goslin Mountain</td><td>10,517</td></tr> <tr> <td>Gadson</td><td>200</td></tr> <tr> <td>Hatch Cove</td><td>436</td></tr> <tr> <td>Hoy Flat</td><td>1,000</td></tr> <tr> <td>Offield Mountain</td><td>820</td></tr> <tr> <td>Pot Creek</td><td>577</td></tr> <tr> <td>Rye Grass</td><td>78</td></tr> <tr> <td>School Bus</td><td>489</td></tr> <tr> <td>Sears Canyon-Marshall Draw</td><td>266</td></tr> <tr> <td>Serviceberry Spring</td><td>286</td></tr> <tr> <td>Shiner</td><td>400</td></tr> <tr> <td>Taylor Flat-Watson</td><td>1,600</td></tr> <tr> <td>Warren Draw</td><td>637</td></tr> <tr> <td>Willow Creek</td><td>2,720</td></tr> <tr> <td>Bealer Basin-Diamond Gulch-Diamond Spring</td><td>270</td></tr> <tr> <td>Cooper Draw</td><td>543</td></tr> <tr> <td>Total</td><td>31,233</td></tr> </table>	Allotment	Acres That Would be Improved	<u>Continue Allotment-Wide Grazing</u>		Highway	145	McKee Spring	60	Natural Lake	2	Bates Spring	130	East Cow	80	<u>Continue Existing Improved Management</u>		Hoy Mountain	444	Dry Creek-South Pot Creek-Wild Mountain	5,270	Ruple Cabin	2,167	<u>Implement Improved Grazing Management</u>		Bridgeport	2,096	Clay Basin-Antelope Flat-Goslin Mountain	10,517	Gadson	200	Hatch Cove	436	Hoy Flat	1,000	Offield Mountain	820	Pot Creek	577	Rye Grass	78	School Bus	489	Sears Canyon-Marshall Draw	266	Serviceberry Spring	286	Shiner	400	Taylor Flat-Watson	1,600	Warren Draw	637	Willow Creek	2,720	Bealer Basin-Diamond Gulch-Diamond Spring	270	Cooper Draw	543	Total	31,233	
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VEGETATION (continued)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

FORAGE CONDITION (continued)

Present and expected forage condition 15 to 20 years after implementation of the alternative (acres total) is:

<u>Condition</u>	<u>Present</u>	<u>Expected</u>
Good	55,836	87,069
Fair	126,285	98,752
Poor	8,415	4,715

The objective to improve forage condition from fair to good on 25,022 acres would be exceeded (half of the currently fair condition range), exclusive of those acreages in the Douglas fir and pinyon-juniper types.

TREND IN FORAGE CONDITION

Continuation of allotment-wide grazing on 15 allotments would perpetuate the current use of key forage species during the critical periods for growth and reproduction. Spraying or chaining of undesirable vegetation is proposed on the following allotments:

<u>Allotments</u>	<u>Acreage</u>
Bates Spring	300
Bowery Spring	700
East Cow	80
Gadson Draw-Gerber Spring	556
Highway	336
Mail Draw	500
McKee Spring	870
Natural Lake	540
Total	3,882

Continuation and implementation of improved grazing management, including spraying and chaining, on 24 allotments would provide periodic rest, and lessen competition, for key forage species during the growing season.

Actual trend studies have been initiated on 5 of the 39 allotments in the planning unit. These studies show the following:

<u>Allotments</u>	<u>Trend^a</u>	
	<u>Improving</u>	<u>Static</u>
Clay Basin-Antelope Flat-		
Goslin Mountain	19,275	9,027
Hoy Mountain	2,039	1,511
Red Creek	4,889	3,569
Ruple Cabin	12,100	0
Taylor Flat-Watson	4,826	7,471
Total	43,129	21,578

^aNo areas are declining.

Trend would remain static on all 15 allotments (11,975 acres) where livestock grazing would continue allotment-wide, except on 1,976 of fair condition range which would be sprayed or chained. These 1,976 acres are expected to show an improving trend.

Periodic rest on key forage species would favor their growth and trend would continue to improve on 43,129 acres of the following five allotments where trend studies are established.

<u>Allotment</u>	<u>Acres</u>
Clay Basin-Antelope Flat-	
Goslin Mountain	19,275
Hoy Mountain	2,039
Red Creek	4,889
Ruple Cabin	12,100
Taylor Flat-Watson	4,826
Total	43,129

VEGETATION (concluded)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

TREND IN FORAGE CONDITION (continued)

An improving trend is expected to occur on all of the areas now in fair condition (except Douglas fir and pinyon-juniper vegetation types), on the remaining 16 allotments where improved grazing management would continue, or be implemented. On the remaining allotment (Bridgeport), desirable species are so small in the composition that no improvement in forage condition trend can be expected through management alone. These allotments and acreages are shown below:

<u>Allotment</u>	<u>Acres</u>
Bealer Basin-Diamond Gulch-	
Diamond Spring	541
Cooper Draw	1,086
Davis Draw-Crouse Reservoir	
Lambson	0
Dry Creek-South Pot Creek-	
Wild Mountain	9,419
Gadson	400
Hatch Cove	871
Hoy Flat	1,999
Jackson Draw-Crouse Canyon-	
Dry Hollow	0
Little Hole	0
Offield Mountain	0
Pot Creek	1,154
Rye Grass	156
School Bus	978
Sears Canyon-Marshall Draw	533
Serviceberry Spring	571
Shiner	0
Warren Draw	794
Willow Creek	5,439
Total	23,943

Chaining of pinyon-juniper and spraying of sagebrush would result in improving trend as follows:

<u>Allotment</u>	<u>Acres</u>
Bridgeport	3,865
Offield Mountain	820
Shiner	400
Taylor Flat-Watson	1,600
Warren Draw	240
Total	6,925

The current forage condition trend is:

<u>Improving</u>	<u>Static</u>	<u>Declining</u>
38,240 (20%)	152,296 (80%)	0

Should this alternative be implemented, the following trend would be expected for the next 15 to 20 years:

<u>Improving</u>	<u>Static</u>	<u>Declining</u>
75,973 (40%)	114,563 (60%)	0

Impacts on Animal Life

Impact identification specifically addresses three major components of the alternative action which are significant to animal life. These are: forage allocation, vegetation changes, and range developments.

Impacts to animal life would occur from actions taken under the sub-categories of vegetation composition changes and livestock grazing changes, which are explained in other sections of this chapter. To meet requirements for maximizing livestock use under this alternative, significant changes in the vegetation composition (browse to grass) would be necessary. Such changes would have serious adverse impacts to deer and antelope, while a favorable impact would result for elk. These changes could influence population levels of all species. Animal life population changes would in turn impact recreation activities and economics.

An important change is the reduced allocation of forage for deer, elk, and antelope. The analysis of this forage allocation indicates that deer would need to be reduced 527 animals below the existing numbers, while elk would be reduced 252 animals and 20 antelope would need to be removed.

The direct effect of spraying with 2,4-D on animals is shown to be unmeasurable or non-existent from the analysis in Chapter 3 and are not restated here.

Vegetation changes are the basis for evaluating the affect the quality of habitat for all animals species in the planning unit as shown below:

ANIMAL LIFE

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaDEER

It is proposed to continue existing livestock management practices on 19 allotments. Vegetation manipulation would occur on 16,022 acres (spraying and chaining) which would increase grass composition and decrease browse composition. Impacts occurring would be specifically caused by changes in vegetation composition from browse to grass on 17 allotments. It is also proposed to implement improved grazing management on 20 allotments and convert 31,030 acres of sagebrush and pinyon-juniper dominated vegetation to a grass-shrub type. Impacts occurring would be caused by a vegetation composition change toward grasses on all allotments. Regular permitted livestock use would occur on Red Creek and Taylor Flat-Watson allotments and livestock use would be introduced on Rye Grass Allotment.

Also proposed is to initially allocate an increase of 1,086 AUMs and allocate an additional increase of 1,086 AUMs long-term to deer.

Also proposed is to provide an additional 119 watering sites on 27 allotments.

Mule deer range would decrease in quality on 163,805 acres due to a change from browse to grass. The change in season of use would decrease the quality of winter ranges according to Betram, et al., (1977); Knowles (1975); and Pac (1976). These quality changes would occur within 15 to 20 years.

Potential forage would be allocated for an initial and long-term decrease of 527 deer on a 12-month basis. This would decrease winter deer from 5,266 to 4,739 and summer deer from 2,047 to 1,520.

Approximately 76,160 acres of deer range would be improved in quality due to the development of 119 additional water sites. This is based upon Hasley's (1956) findings that deer need one water site per square mile for optimal habitat conditions. These developments would be completed within 15 to 20 years.

ELK

It is proposed to continue existing livestock management practices on 19 allotments. Vegetation manipulation would occur on 16,022 acres (spraying and chaining) which would increase grass composition and decrease browse composition. Impacts occurring would be specifically caused by changes in vegetation composition from browse to grass on 17 allotments. It is also proposed to implement improved grazing management on 20 allotments and convert 31,030 acres of sagebrush and pinyon-juniper dominated vegetation to a grass-shrub type through spraying and chaining. Impacts occurring would be caused by a vegetation composition change toward grasses on all these allotments. Regular permitted livestock grazing would occur on Red Creek and Taylor Flat-Watson allotments and livestock use would be introduced on Rye Grass Allotment.

Also proposed is to decrease the allocation by 1,606 AUMs to elk.

Also proposed is to provide an additional 119 watering sites on 27 allotments.

No planning objectives for elk have been identified.

Elk summer and winter ranges would improve in quality on 163,805 acres due to a change from browse to grass. Boyd, (1970) found under all seasons, a strong preference by elk, for grass dominated ranges. These quality changes would occur within 15 to 20 years.

Less forage would be allocated for elk resulting in an initial and long-term decrease of 252 elk on a 12-month basis. This would decrease winter elk numbers from 473 to 221 and summer elk numbers from 345 to 93.

Water development would have an overall benefit to elk and their habitat. Leopold (1933) found an increase in water would allow better elk distribution and better utilization of the increased forage allocation.

ANIMAL LIFE (continued)

Resource Sub-category and
Relationship to the AlternativeExisting Environment,
Probable Impacts, and Affected AreaANTELOPE

It is proposed to initiate improved grazing management on three allotments within inventoried antelope range. Impacts occurring would be specifically caused by changes in vegetation composition from browse to grass.

Overall habitat qualities on both summer and winter ranges are expected to improve on 42,292 acres from fair to excellent. Yoakum (1967) in his bibliography of literature on antelope shows a general consensus that browse and forbs are primary constituents of the dietary intake by antelope. Grasses, which are predicted to increase, make up only a minor dietary percentage. These quality changes would occur within 15 to 20 years.

Also proposed is to initially and in the long-term, decrease the allocation by 10 AUMs year-long to antelope.

The allocation for an initial and long-term decrease of 20 antelope on a 12-month basis.

Also proposed is to provide an additional 30 watering sites on 3 allotments within inventoried antelope ranges.

Overall, habitat qualities would be benefitted by the development of 30 additional water sites within the next 20 years. A daily water source for antelope is a critical habitat component (Yoakum, 1967).

Objectives of maintaining or improving antelope habitat would be met. Objectives of allocating additional forage would not be met.

UPLAND GAME

It is proposed to continue existing livestock management practices on 19 allotments. Vegetation manipulation (spraying and chaining) would increase grass composition on 16,022 acres. Impacts occurring would be specifically caused by changes in vegetation composition from browse to grass on 17 allotments.

Habitat conditions are rated fair to good for sage grouse, fair to good for cottontail rabbits and fair for mourning doves (UDWR, 1979). Allotments changing from browse to grass would decrease habitat for sage grouse and cottontails (Wallested, 1975; Flinders, et al., 1975).

It is proposed to implement improved grazing management on 20 allotments and convert 31,030 acres of sagebrush and pinyon-juniper dominated vegetation to grass dominated vegetation through spraying and chaining. Impacts occurring would be also caused by a vegetation composition change toward grass on all allotments.

The vegetation change by spraying would improve mourning dove habitat through additional grass seed production (Sanderson, 1977). Sage grouse could benefit if 20 to 30 percent of the sagebrush canopy is left. If only a 5 percent reduction of the canopy occurs, sage grouse would be benefitted. If only 10 percent of the canopy is left after spraying, the habitat would be useless (Wallsted, 1975).

THREATENED OR ENDANGERED SPECIES
(BALD EAGLE)

There are no components of the alternative which relates directly to bald eagles.

Four allotments (Bridgeport, Taylor Flat-Watson, Red Creek and Little Hole) comprising 20,595 acres, support 12 to 18 wintering bald eagles (Wagner, 1977). Impacts resulting from allotment-wide grazing and improved management are expected to be minimal since eagles rely heavily on fish and waterfowl (Spencer, 1976). The prey base is presently stable (UDWR, 1979) and not expected to change during the next 15 to 20 years as a result of this alternative.

ANIMAL LIFE (concluded)

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaFISH

Under intensive grazing management, increased streambank cover can be expected on Jackson and Willow Creeks. This would be further improved by fencing riparian habitat along Jackson Creek. Static conditions are expected to remain on fish habitat related to allotments with continued allotment-wide grazing. An objective provides for improvement of riparian habitat and streambank cover.

The section of Green River associated with continued allotment-wide grazing would continue in a stable condition. That section associated with improved grazing management is presently rated in good condition and this habitat would continue to improve. Red Creek would continue to be the principal cause of deteriorating habitat (USGS, 1971-1976). Similar improved conditions would result on Willow Creek under improved grazing management. This change would result on Jackson and Willow Creeks within a 15 to 20 year time frame.

No impacts to riparian habitat from spraying sagebrush under this proposal are expected since the stipulation for no spraying within 1/2 mile of any riparian habitat would be imposed.

WATERFOWL

Under improved management, riparian vegetation habitat would improve in Sears Canyon-Marshall Draw Allotment. Other allotments under improved management and continued allotment-wide grazing are expected to remain static. Developments proposed include nine additional reservoirs in five allotments.

Waterfowl habitat condition is rated poor to fair on 10 allotments (74,927 acres) (UDWR, 1978). Increasing ground cover and overhead canopy would improve riparian areas on two allotments, and no impacts would result on the other allotments.

By providing additional standing water, through building reservoirs, waterfowl habitat would be expanded.

NON-GAME MAMMALS

Implementation of improved grazing management and continuing existing improved grazing management with their proposed sagebrush control projects would cause a vegetation change in favor of grasses.

The specific impacts to the 43 species of non-game mammals in the unit (190,536 acres) are unquantifiable. Sagebrush conversion of 1,660 acres would however, have a degree of both adverse and beneficial impacts to primary consumers (herbivores) and secondary consumers (carnivores). This would take from 15 to 20 years.

NON-GAME BIRDS

Implementation of improved grazing management and the continuation of present improved management systems along with sagebrush control projects would cause a change in the vegetation composition. This change would mainly favor grasses.

Impacts are unquantifiable for the 141 species of non-game birds in the unit (190,536 acres). Vegetation changes would be beneficial to some birds and adversely affect others. Time frame is 15 to 20 years.

REPTILES AND AMPHIBIANS

Implementation of improved grazing management and continuing the present improved management systems and sagebrush control projects would cause vegetation type conversions favoring grasses which would, in turn, cause changes in the prey base.

No quantifiable impacts can be determined for the 6 species of amphibians and 14 species of reptiles which exist on the planning unit (190,536 acres) except that the protection of riparian zones would benefit amphibians since these zones are of vital importance to the sub-category (Hubbard, 1977). Time frame is 15 to 20 years.

INVERTEBRATES

Vegetation changes would occur resulting from improved grazing management and continued allotment-wide grazing. Spraying and chaining would also cause vegetation conversions, principally from browse to grass.

No data is available on species occurrence or habitat requirements of invertebrates. Morris (1967), however, found that selected insects were consistently adversely affected by any degree of grazing pressure. Morris also found a direct correlation in the diversity of insects relating to the diversity of vegetation composition. This would indicate that any increased grazing pressure would adversely affect invertebrates. This would similarly be true on all spray and chain areas.

Impacts on Cultural Resources

This section deals with the effect of this alternative on cultural resources. Ground-disturbing actions resulting from the construction and use of range developments could adversely affect cultural resources. However, any adverse impact to significant sites would be mitigated in accordance with the National Historic Preservation Act of 1966.

CULTURAL RESOURCES

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
The range developments involve ground-disturbing actions resulting from vegetation manipulation (chaining), and the construction and use of water pipelines, water troughs, springs, water storage tanks, reservoirs, and fences.	Forty-four sites have been recorded in seven of the allotments scheduled for range developments. Limited cultural resource work has been done in the remaining 25 allotments scheduled for range developments, but additional sites are assumed to exist in the area. Ground disturbance associated with range developments could damage or destroy cultural resources, but mitigation included in the proposal would prevent adverse impacts to significant sites. Regardless of mitigation, adverse impacts may occur in isolated cases. This could occur on 4,537.06 acres.

Impacts on Paleontology

This section deals with the effect of this alternative on paleontological resources. Ground-disturbing actions resulting from the construction and use of range developments could adversely affect paleontological resources. However, mitigation included in the proposal would prevent most adverse impacts.

PALEONTOLOGY

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Ground disturbing activities are proposed on four allotments containing fossil-bearing formations.	Fossil-bearing formations are exposed in four of the allotments scheduled for range developments. The Morrison Formation containing vertebrate fossils is exposed in the Bowery Spring and Bealer Basin-Diamond Gulch-Diamond Spring allotments. The Fort Union Formation containing plant fossils is exposed in the Clay Basin-Antelope Flat-Goslin Mountain and Willow Creek allotments. The Hilliard Shale containing invertebrate fossils is exposed in the Clay Basin-Antelope Flat-Goslin Mountain and Willow Creek allotments. Ground disturbance associated with range developments could damage or destroy paleontological resources, but mitigation included in the proposal would prevent most adverse impacts. Regardless of mitigation, adverse impacts may inadvertently occur in isolated cases. The range developments involve ground-disturbing construction activities. Construction would disturb 31.02 acres in these allotments.

Impact on Visual Resources

Structures and disturbance from proposed range developments and vegetation manipulation are the basis of impact on the visual resources. Structures, disturbance, and vegetation manipulation would cause accumulative impacts on the visual resource. The summaries below show the visual impact as it would occur within identified Visual Resource Management Class areas.

VISUAL RESOURCES

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Three hundred and ten range developments and 51,627 acres of vegetation manipulations are proposed.	Visual Resource Management (VRM) Class II, III, IV, and V areas have been identified in the planning unit. The management objective for each VRM class allows a different degree of visual modification in the landscape (Appendix II-8). Evidence of livestock management is common in the form of fencelines, water developments and chained areas. Most range developments and all vegetation manipulations would be located in Class III, IV, and V areas. Fencing may occur within a Class II area in Sears Canyon-Marshall Draw. Structures and disturbance from proposed range developments and vegetation manipulation would cause a visual modification in the landscape where they occur. Visual modification from individual projects would be compatible with the management objectives for the VRM class area in which they occurs, but the cumulative impact could exceed VRM class objectives in some cases.

Impact on Recreation Resources

The basis of impact on recreation would include structures and disturbance from proposed range developments and vegetation manipulation that could reduce the aesthetic qualities of recreation use areas, structures that could impede recreational access, and any change in management or allocation that would alter numbers of wildlife available for hunting and fishing. The analysis assumes that, with present wildlife numbers, the planning unit provides a certain amount of hunter success, satisfaction, and hunter-fisherman days. With any increase or decrease in wildlife numbers, the planning unit would provide for a direct increase or decrease in hunter success, satisfaction or hunter-fisherman days. It is not assumed, however, that numbers of hunters and fishermen would actually decrease.

RECREATION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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INVENTORIED RECREATION SITES

Eighty range developments and 9,142 acres of vegetation manipulation are proposed within allotments containing inventoried recreation sites.

The planning unit contains 31 inventoried recreation sites for picnicking and camping, located within 21 allotments.

Eight allotments contain 15 inventoried recreation sites that could be directly impacted by range developments or vegetation manipulations: Hoy Mountain, Ruple Cabin, Little Hole, Pot Creek, Sears Canyon-Marshall Draw, Warren Draw, Willow Creek, Cooper Draw. (Sites within these allotments that are located along the Green River are not included because it is not anticipated that they would be impacted). The recreational value of inventoried sites could be reduced, if sites are directly impacted.

OFF-ROAD VEHICLE ACCESS

Ninty-two miles of fence are proposed.

Four-wheel driving, usually associated with hunting, occurs on unmaintained trails throughout the planning unit. Unmaintained trails could be fenced in the following 13 allotments: Gadson, Hatch Cove, Hoy Flat, Little Hole, Offield Mountain, Pot Creek, School Bus, Sears Canyon-Marshall Draw, Serviceberry Spring, Shiner, Warren Draw, Willow Creek, and Cooper Draw. If unmaintained trails are fenced, access would be reduced.

FISHING

No change in fisheries habitat is anticipated.

Trout fishing occurs in the Green River, Willow Creek, Jackson Creek, Crouse Reservoir, and Calder Pond. No change in fisherman success, satisfaction, or days is anticipated.

HUNTING

This alternative would allocate 1,086 less AUMs for deer initially, and over the long-term, causing a decrease in deer initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting deer. The potential decrease in deer numbers, based on the present hunter success ratio, would provide for 2,013 less deer hunter days over the short-term and long-term.

This alternative would allocate 1,606 less AUMs for elk initially and over the long-term causing a decrease in elk initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting elk. The potential decrease in elk numbers, based on the present hunter success ratio, would provide for 1,197 less elk hunter days over the short-term, and the long-term.

This alternative would allocate 16 less AUMs for antelope, resulting in a possible decrease of 20 antelope on a 12-month basis. It would decrease sage grouse and cottontail and increase mourning dove habitat.

The planning unit provides opportunities for hunting antelope, sage grouse, cottontail, mourning dove, and waterfowl. Little affect is anticipated on hunter success, satisfaction and days.

Impact on Livestock Grazing

There are two major impacts identified in the analysis: (1) increased allocation of forage would allow both cattle and sheep numbers to increase on three allotments now under improved management and 20 allotments proposed for improved management, and (2) the amount of red meat being produced on the planning unit from calves and lambs would increase with the improvement of forage condition.

LIVESTOCK GRAZING

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Continuing the present allotment-wide grazing on 15 allotments would result in an initial increased forage allocation of 1,495 AUMs and an additional long-term allocation of 2,042 AUMs which would in turn mean an increase in livestock numbers. Continuation of existing allotment-wide grazing would also result in 1 spring development, 1 mile of water pipeline, 3 water troughs, 7 reservoirs, 3,262 acres of sagebrush control, and 80 acres of pinyon-juniper control. This would in turn lead to additional water for livestock, as well as improve forage quality.	Additional forage allocated to livestock would result in an initial increase of 44 cattle and 1,790 sheep and a long-term increase of 60 cattle and 2,327 sheep on 51,513 acres (BLM, 1976). This increase would be added to a base of 688 cattle and 10,055 sheep presently grazing on these 15 allotments. On 8 of the 15 allotments: Bowery Spring, Gadson Draw-Gerber Spring, Highway, McKee Spring, Natural Lake, Bates Spring, East Cow, Mail Draw (7,095 acres), sagebrush spraying and pinyon-juniper control along with water developments are expected to improve forage condition (Pechanec, 1965 and Stoddart, Smith, and Box, 1975), thereby increasing weight gains on calves and lambs. Cook (1966) states that calves grazing on improved ranges would gain 0.6 pounds per day more than calves grazing on adjacent unimproved ranges, and lambs would gain 0.03 pounds more per day.
Continuation of improved grazing management on four allotments with a change in season-of-use on Red Creek and including 12,140 acres of sagebrush control, 560 acres of pinyon-juniper control, and other developments would result in an initial increased forage allocation of 1,885 AUMs and a long-term increase of 3,871 AUMs.	Additional forage allocated to livestock would result in an initial increase of 412 cattle and a long-term increase of 776 cattle on 39,538 acres (BLM, 1976). This increase would be added to a base of 1,223 cattle which are presently grazing on these four allotments. The sagebrush and pinyon-juniper control and water developments on these allotments would also lead to improved forage conditions (Pechanec, 1965 and Stoddart, Smith, and Box, 1975) which would in turn lead to increased gains on calves. Cook (1966) found that calves grazing on improved ranges would gain up to 0.6 pounds per day more than calves on adjacent unimproved ranges.
Implementing improved grazing management on 20 allotments with a change in season of use on Bridgeport and Taylor Flat-Watson, and Rye Grass be added for livestock use and including 31,436 acres of sagebrush control, 1,460 acres of pinyon-juniper control and other developments, would result in an initial increased forage allocation of 6,712 AUMs and a long-term increase of 13,360 AUMs which would in turn mean an increase in livestock numbers.	Additional forage allocation would result in an initial increase of 986 cattle and 2,070 sheep and a long-term increase of 2,083 cattle and 3,426 sheep on 139,023 acres (BLM, 1976). This would be added to a base of 3,213 cattle and 7,023 sheep which are presently grazing on these 20 allotments. On all 20 allotments, the implementation of improved grazing management together with the proposed range improvement would lead to better livestock distribution (Stoddart, Smith, and Box, 1975) and improved forage condition (Pechanec, 1965; Morris, 1934) which would in turn result in increased weight gains on calves and lambs. Cook (1966) found that calves on improved range would gain 0.6 pounds per day more than calves grazing on adjacent unimproved ranges and lambs would gain 0.03 pounds per day more than lambs on adjacent unimproved ranges.
Should the alternative be implemented, the objectives of increasing livestock use by 1,860 AUMs on 20 allotments would be exceeded by 17,413 AUMs and would occur on all 39 allotments.	

Impact on Special Designation Areas

Structures and disturbances from proposed range developments, including vegetation manipulation, could affect wilderness, wild and scenic rivers, and outstanding natural areas values if Chapter 1 standard design features were not followed. All of the proposed developments could not be completed following those standards.

SPECIAL DESIGNATION AREA

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
<u>WILDERNESS</u>	
One hundred and forty-eight range developments, 42.5 miles of fence, and 51,477 acres of vegetation manipulation are proposed.	The initial step in BLM's wilderness review process has been completed within the planning unit and 11 wilderness inventory units have been identified within all or part of 25 allotments. Range developments and vegetation manipulation are proposed within 22 of the 25 allotments that contain wilderness inventory units. These are as follows: Bowery Spring, Bates Spring, Red Creek, Bridgeport, Taylor Flat-Watson, Hoy Mountain, Ruple Cabin, Dry Creek-South Pot Creek-Wild Mountain, Clay Basin-Antelope Flat-Goslin Mountain, Pot Creek, Sears Canyon-Marshall Draw, Serviceberry Spring, Shiner, Warren Draw, Willow Creek, Bealer Basin-Diamond Gulch-Diamond Spring, Cooper Draw, Davis Draw-Crouse Reservoir-Lambson. No impact is anticipated due to protective measures and design restrictions identified in Chapter 1.
<u>WILD AND SCENIC RIVER</u>	
No developments are proposed within the river corridor.	The National Park Service is studying the Green River from the base of Flaming Gorge Dam through Browns Park for possible Wild and Scenic River designation. This alternative would not affect the suitability of the River for Wild and Scenic River designation.
<u>OUTSTANDING NATURAL AREA</u>	
Fencing is proposed within the Crouse Canyon study area.	Crouse Canyon is being considered by BLM for designation as an Outstanding Natural Area. It is unlikely that structures and disturbance as proposed would affect the suitability of the Crouse Canyon for designation.

Impact on Land Use Plans

Since state and local governments also have jurisdiction in the Three Corners Planning Unit, changes made in present grazing operations and practices are of concern to them. The analysis in this section deals with the relationship between existing land use plans, controls, and constraints and the alternative action. No conflicts between this action and existing plans were identified.

LAND USE PLANS

Relationship to Alternative Action	Existing Environment, Probable Impacts, and Affected Area
None of the zoning designations applied to the area conflict with livestock grazing or range improvement programs. The policies of the Utah Division of State Lands are consistent with the proposed use of the area's resources.	The planning unit is currently covered by three county zoning ordinances.

Impact on Socioeconomic Conditions

The total livestock industry with this alternative would make up 3.8 percent of the total personal income in Uintah and Daggett counties. The additional income generated by implementation of the alternative on the Three Corners Planning Unit would account for 12.2 percent of the total livestock income and 0.5 percent of the total personal income in the two counties. The influence which this alternative would have on the state and regional economics is considered insignificant and is not pursued further.

The following table for socioeconomics present the projected impacts for the three representative ranch sizes described in Chapter 2, the recreational sector, and social attitudes.

A summary of the economic impact to ranch operators is shown below:

	<u>Small Operator</u>	<u>Medium Operator</u>	<u>Large Operator</u>
Existing Net Income	\$1,150.00	\$-6,914.00	\$57,044.00
Projected Net Income	\$ 492.00	\$-9,599.00	\$56,526.00
Projected Change	\$ -658.00	\$-2,645.00	\$ -518.00

The average operators would lose money from the implementation of this alternative largely as a result of the increased cost of maintaining the new range developments.

Social attitudes of the affected ranch operators would be negative to the new cost and resistance to the assignment of maintainance cost would be expressed. Support for those facilities which do not require maintainance cost (vegetation manipulation) would be strong from livestock operators, while strong resistance from wildlife groups would be expected because of the wildlife reductions.

SOCIOECONOMIC CONDITIONS

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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INCOME TO SMALL OPERATORChange From Allocation

Additional AUMs would be provided to small ranch operators. Allocation of forage to livestock would be maximized. In the long-term, 975 AUMs would be allocated to the small ranch operators.

Additional improvements to the range would cost operators an estimated \$73,000 per year. Dividing that figure by 35,174 total AUMs, yields a per AUM cost of \$2.08.

Presently 24 operators are permitted to use 12 allotments (13 are permitted on Ruple Cabin under improved management). The average small operator has 81 animal units (BLM, 1979). The typical small ranch net income is \$1,150.00 in 1977.

Under this alternative, there would be 17 small operators. The average small operator would have 975 AUMs and about 81 AUs.

The estimated existing and alternative budget for the average small ranch operator would be:

	<u>Existing Situation</u>	<u>Alternative</u>
Gross Income	\$8,885.00	\$10,255.00
Total Costs	\$7,735.00	\$ 9,763.00
Additional maintenance this alternative @ \$2.08/AUM	\$2,028.00	
Total from allocation:	\$7,735.00	
Net Income	\$1,150.00	\$ 492.00

INCOME TO MEDIUM OPERATORChange From Allocation

Additional AUMs would be provided to medium ranch operators. On the long-term, 2,680 AUMs would be allocated to medium operator. The additional maintenance cost of \$2.08 per AUM would apply to medium operators.

Presently 14 livestock operators are permitted to use 15 allotments. The average medium operator has 224 animal units. It is estimated that the average medium operator presently operates at a net loss of \$6,914.00 per year.

Under this alternative, there would be 19 medium operators. The average medium operator would have 2,680 AUMs and about 223 AUs.

The estimated budget for the average medium ranch operation would be:

	<u>Existing Situation</u>	<u>Alternative</u>
Gross Income	\$39,006.00	\$41,766.00
Total Costs	\$45,920.00	\$51,325.00
From allocation	\$45,751	
Maintenance:	\$ 5,574	
Net Loss	\$-6,914.00	\$-9,559.00

SOCIOECONOMIC CONDITIONS

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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INCOME TO LARGE OPERATORChange From Allocation

Additional AUMs would be provided to large ranch operators. In the long-term, 89,135 AUMs would be allotted to the ranchers in the large category. The additional cost of maintenance of \$2.08 per AUM would apply to large ranchers.

Presently seven operators are permitted to use 12 allotments. The average large operator has 705 animal units. The typical large ranch net income is \$57,044.00

Under this alternative, there would be nine large operators. The average large operator would have 9,904 AUMs and about 825 AUs.

The estimated and projected budget for the average large ranch operation would be:

	Existing Situation	Alternative
Gross Income	\$120,230.00	\$151,198.00
Total Costs:		
From Allocations	\$63,605.00	94,672.00
Additional Maintenance	\$74,072	
	\$20,600	
Net Income	\$ 57,141.00	\$ 56,526.00

INCOME FROM ALLOCATIONS TO BIG GAME

This alternative would allocate 1,086 less AUMs for deer. Potential decrease in deer numbers would cut 2,013 deer hunter days.

It is estimated that 14,213 hunter days on the planning unit presently produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County Area, based on the present estimated value of hunter days of \$49.94. The reduced hunter days would cut \$160,309.00 of gross income to the area.

The proposal would also allocate 1,606 less AUMs for elk. Potential decrease in elk numbers would provide 1,197 less elk hunter days.

This would in turn mean a reduction of \$106,872.00 of net income for the two county area.

SOCIAL ATTITUDES

The alternative would provide approximately 1,864 additional AUMs to livestock grazing.

The introduction of improved management would be viewed as an increased federal government intervention since the management would be tied to AMPs. The livestock would have stronger feelings that decisions are being thrust upon them which do not reflect their best interests. The implementation and enforcement of the specification of AMPs or other management tools could meet with opposition from local operators. However, any proposal to improve livestock forage (i.e., chaining or burning) would be strongly supported by permittees. The increased AUMs would be favorably accepted, but permittees may ask for even more AUMs.

The high value which is placed on the ranching way of life would continue, even though very few people are involved in this profession.

Decreased forage allocation to big game would reduce numbers.

The ranchers would find the trespass and access demands would continue. Conflicts with off-road vehicle users would also continue. Strong resistance to the alternative would be expected from wildlife groups.

C. CONTINUATION OF PRESENT GRAZING MANAGEMENT AND LEVEL OF USE

1. Description of the Alternative

a. Purpose and Objectives

The major purpose of this alternative is to evaluate the impacts if no action is taken to change grazing management or levels of allocation within the planning unit.

b. Forage Allocation

The initial livestock allocation would be 15,901 preference AUMs and 1,672 AUMs that would be available on temporary non-renewable permits. With continuation of the present improved management system on the Dry Creek-South Pot Creek-Wild Mountain Allotment, 191 additional AUMs could be provided from response of vegetation to the management system and an additional 176 AUMs would result from sagebrush control in Ruple Cabin and Hoy Mountain. These additional AUMs would be allocated to livestock on a temporary non-renewable permit basis to make the total livestock allocation 17,940 AUMs at the end of a 20 year period following implementation.

The initial and long-term big game allocation would be 16,770 AUMs. Forage allocation is summarized on Table 8-6 and identified by allotment in Appendix VIII-3.

c. Components of the Alternative Action

The alternative would be divided into three major components: (1) no livestock grazing, (2) continue present allotment-wide grazing, and (3) continue present improved management. The components are divided into groups of like allotments which would be managed in a common fashion (see Appendix VIII-4).

Major criteria considered in selecting the existing range management (grazing and resting treatment) include:

1. Wildlife. Species present, seasons of use, forage and habitat needs, and critical areas were considered in order to determine how a treatment would affect wildlife values.
2. Watershed. Watershed conditions and soil characteristics were evaluated to identify potential problem areas and to determine how various treatments would affect soil productivity and water quality.
3. Livestock. Seasons of use, numbers, kind of livestock, food preferences, habits, and husbandry needs, were used to determine the effect of management upon livestock operations.
4. Vegetation. Conditions, production, and phenological requirements were evaluated to determine the effects that grazing and resting treatments would have upon growth and reproduction of key plant species.

TABLE 8-6

Summary of Existing Forage Use and Alternate Forage Allocation^a
With the Present Management and Level of Allocation

Alternative Action Component and Subcomponent	Existing Livestock and Big Game Grazing Situation						Alternative Forage Allocation (AUMs)			
	Forage Production AUMs	Present Livestock Use ^b				Est. Current Wildlife Use (AUMs)	Initial		Long-Term (20th Year)	
		Kinds	No.	AUMs Pref.	AUMs Actual		Livestock ^c	Big Game	Livestock ^d	Big Game
No Livestock Grazing (1 Allotment)	508	None	0	0	0	436	0	508	0	508
Continue Allotment- wide Grazing (34 allotments)	26,270	Shp. Cat.	17,078 688	11,454	9,523	8,925	12,454	13,816	12,454	13,816
Spring (2 allotments)	2,935	Cat.	84	139 ^e	686	1,411	1,139	1,796	1,139	1,796
Spring and Fall (9 allotments)	6,232	Shp.	14,388	2,731	1,633	949	2,731	3,501	2,731	3,501
Spring, Summer, Fall (21 allotments)	16,657	Shp. Cat.	2,690 2,788	8,310	6,928	6,398	8,310	8,347	8,310	8,347
Spring, Summer (2 allotments)	446	Cat.	435	274	274	167	274	172	274	172
Continue Existing Improved Management (4 allotments)	7,565	Cat.	1,223	4,447	4,429	1,697	5,119	2,446	5,486	2,446
Rest-Rotation (2 allotments)	2,265	Cat.	175	552 ^e	1,201	731	1,224	1,041	1,291	1,041
Deferred Rotation (1 allotment)	2,359	Cat.	398	1,446	1,021	646	1,446	913	1,637	913
Deferred Rotation and Rest Rotation (1 allotment)	2,941	Cat.	650	2,449	2,207	320	2,449	492	2,558	492
TOTAL	34,343	Shp. Cat.	17,078 5,068	15,901	13,952	11,058	17,573	16,770	17,940	16,770

Source: Three Corners Planning Documents.

^aAppendix VIII-C contains the details of the existing forage use and proposed forage allocation; it also contains additional explanatory footnotes.

^bNo. = Number of animals, Cat. = cattle, Shp. = sheep, Pref = Preference, Actual = 5 year average use.

^cIncludes temporary non-renewable use of 1,000 AUMs on the Taylor Flat-Watson Allotment and 672 AUMs on the Red Creek Allotment.

^dIncludes 1,672 AUMs from ^c above, plus increase of 191 AUMs from management on the Dry Creek-South Creek-Wild Mountain Allotment, and 176 AUMs from sagebrush control on the Hoy Mountain and Red Creek allotments.

^eDoes not include temporary non-renewable AUMs.

5. Climate. Temperature, precipitation patterns were evaluated to determine their effects upon the treatment's viability.
6. Range Developments. Existing developments and costs of additional fencing and water developments were considered to determine additional costs needed to support range management.
7. Land. Ownership patterns were considered in order to coordinate the use of public lands with grazing on private land, state land, and Forest Service land.
8. District funding and manpower were considered because funds available and manpower have been a constrain to the amount of developments and kinds of management existing on the planning unit.

Utilization of up to 60 percent of the key species, which is generally classified as moderate (BLM Manual 4412), would be allowed on all livestock grazing allotments. The utilization limit, together with season of use considerations is expected to provide for the phenological needs of the key species (unpublished Range Study Data, 1967-1974 Vernal District).

No allotments would be administratively combined. Allotments which would be combined under the proposed action are grouped together under this alternative to facilitate comparison with data presented in other portions of this environmental statement.

Required developments are summarized on Table 8-7 and a detailed listing is found in Appendix VIII-5.

No Livestock Grazing

The Rye Grass Allotment would be reserved for big game. The reservation for big game was based upon increasing needs for deer winter and elk range in the planning unit. The Utah Division of Wildlife Resources purchased the base property from the former allotment user and BLM has retired the grazing privileges. Livestock have not been permitted to use the allotment since 1963. Continuing present management would honor existing interagency commitments to emphasize big game forage production.

Allotment-Wide Grazing

Present allotment-wide grazing management would continue on 148,138 acres of public land on 34 allotments (see Appendix VIII-5). These allotments are divided into four subcomponents based on season of use:

TABLE 8-7

Summary of Required Developments^a

Components and Subcomponent	Developments			
	Water Pipelines	Water Troughs	Storage Tanks	Sagebrush Control
<u>No Grazing</u> (1 allotment)	None	None	None	None
<u>Continuation of Existing Allotment- Wide Grazing</u> (34 allotments)	None	None	None	None
<u>Continue Improved Management</u> (4 allotments)	2 (5 mi.)	10	3	1,260 ac.
<u>Total</u> (39 allotments)	2 (5 mi.)	10	3	1,260 ac.

Spring (April and May only)	-	2 allotments
Spring and Fall (May and June and September through October)	-	9 allotments
Spring-Summer-Fall (begin in May or June and continue into October or November)	-	21 allotments
Spring-Summer (begin in June through September 15)	-	2 allotments

On these allotments, livestock would be allowed to graze an entire allotment during the designated grazing season. Except for the Bridgeport and Taylor Flat-Watson allotments, private lands within allotments contribute largely to the total forage produced.

Existing Improved Management Systems

Existing improved management would continue on 39,538 acres of public land in four allotments now under AMPs (see Appendix VIII-4). Two allotments are managed under rest-rotation grazing systems, one allotment is under a deferred-rotation grazing system, and one allotment is under a combined rest rotation and deferred rotation grazing system (see Figure 1-6). Pastures are generally equally divided by forage production. Grazing treatments are rotated so that, at the end of each cycle, each pasture would have received equal treatment, that is, all pastures would be grazed and rested the same amount of time. Range developments which were scheduled in the development of the allotment AMPs would be installed.

d. Monitoring and Study Programs

Present management includes an evaluation at the conclusion of grazing treatments by various study procedures that monitor changes in plant composition and ground cover. The following would be carried out under continuation of present management (BLM Manual Section 4413.3).

1. Actual grazing use, range condition, and trend on:
 - a. Four allotments with improved management
 - b. Three allotments under allotment-wide grazing (Bridgeport, Taylor Flat-Watson, Antelope Flat-Clay Basin-Goslin Mountain).
2. Forage utilization studies on all allotments.
3. Climate analysis throughout the planning unit.

In addition, data on wildlife habitat, riparian vegetation and aquatic habitat utilization and trends, and watershed condition would be collected when pertinent to the resource values of the allotment. Data from these

studies would be evaluated to determine the effectiveness of management and assist in making appropriate adjustments.

If evaluation procedures determine that the objectives for the allotments were not being achieved, modification to the alternative action would occur. Such modifications could include changes in the grazing treatments, livestock numbers, season of use, additional range developments, or any feasible combination of adjustments in order to attain management objectives. Modifications would require preparation of an environmental assessment record or a supplement to this environmental statement before a significant change could be effected.

e. Standard Design, Construction, and Operation Features

These would be the same as described in Chapter 1.

f. Development and Maintenance Costs

Continuation of the district range management program would incur increased costs associated with the implementation and management of the alternative. The range user would also have increased costs associated with maintenance of required range developments, such as spring development and water pipelines. The additional costs would be encountered in the following areas:

1. Administrative costs of completion of AMP development and on-the-ground management.
2. Design and construction of required range developments, including vegetative treatments.
3. Maintenance of range developments.
4. Livestock use supervision, monitoring, and evaluation of management effectiveness.

Construction of required range developments and completion of sagebrush control operations would cost an estimated \$29,560 as shown on Table 8-8). Annual maintenance of existing (Appendix I-6 lists the existing range developments) and proposed range developments would cost an estimated \$11,500 for BLM and \$17,300 for the livestock operators as shown on Table 8-9. Cost figures for other items would be dependent on funding levels, and district priorities.

g. Implementation

It is anticipated that the present range management program would be fully implemented over a 1-year period following filing of the final environmental statement. An implementation schedule is presented on Table 8-10.

TABLE 8-8

Estimated Costs of Required Range Developments
and Sagebrush Control

Item	Quantity	Estimated Acres Surface Disturbance	Estimated Unit Cost	Total
Water Troughs	10	2	\$ 600 each	\$ 6,000
Water Pipeline	5 mi.	6	\$2,000 per mi.	10,000
Storage Tanks	3	0.5	\$2,000 each	6,000
Sagebrush Control	1,260 ac.	1,260	\$ 6 per ac.	7,560
Total		1,268.5		\$29,560

TABLE 8-9

Estimated Costs for Maintenance of Range Developments

	Estimated BLM Expense	Estimated Operator Expense	Total
Annual Maintenance Cost of Existing Range Developments	\$10,000	\$15,000	\$ 25,000
Additional Maintenance Costs of Required Range Developments	\$ 1,500	\$ 2,300	\$ 3,800
Total	\$11,500	\$17,300	\$ 28,800

TABLE 8-10

Implementation Schedule For Continuation of the Current
Range Management Program in the Three Corners Planning Unit

Year	Action
1.	a. Maintain no livestock grazing on one allotment (Rye Grass). b. Continue present allotment-wide grazing on 34 allotments. c. Continue present livestock management on four allotments and complete developments and sagebrush control on these allotments. Range developments would be 5 miles of water pipeline, 10 water troughs, and 3 storage tanks. Sagebrush control would be accomplished on 1,260 acres.

h. Administration

Administration and management of the alternative action would be accomplished through standard BLM operating procedures. Each range user would be issued term permits through the BLM Vernal District Office. These would specify allotment, season, numbers, and kind of livestock.

Livestock grazing use would be supervised throughout the year. Marking of livestock (preferred methods would be ear tagging or paint marking) may be required to monitor movement of livestock and ensure proper use of forage. Grazing use outside the limits of the described alternative and without prior authorization would be considered trespass. If trespass should occur, action would be taken by BLM to ensure that it is eliminated and that payment is made for damages.

The BLM would also make necessary adjustments in the range management program during drought or other emergencies. Such adjustment would be in the interest of accomplishing range management objectives.

2. The Environmental Impacts of the Alternative

Climate, air quality, topography, and geology are not discussed because no major impacts would occur to these resources. Other resource components are introduced and analysis procedures and assumptions given for each resource component.

Impact on Soils

In this analysis are subcategories including sediment yield, erosion condition, seeding suitability, and soil salinity. Soil salinity would not change from the existing situation in terms of salt yielded. The results of the analysis of these specific impacts are described as follows:

SOILS ANALYSIS SECTION

Relationship to the Alternative

Existing Environment, Probable Impacts, and Affected Area

SEDIMENT YIELD

Existing improved management is proposed to continue on Red Creek, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain, comprising 39,538 acres of public land. Grass composition is expected to increase slightly and browse is expected to decrease. Increased vegetation ground cover would help improve watershed conditions.

Sediment yield currently ranges between 0.1 and 0.5 acre-feet per square mile per year. The vegetation composition is expected to change slightly in favor of grass. Ground cover of vegetation would increase. Sediment yield could decrease by a total of as much as 0.80 acre-feet annually (from 0.20 to 0.185 acre-feet per square mile on Red Creek and Hoy Mountain allotments, from 0.15 to 0.135 acre-feet per square mile per year on Ruple Cabin Allotment and from 0.14 to 0.13 acre-feet per square mile per year on Dry Creek-South Pot Creek-Wild Mountain Allotment) (PSIAC, 1968; Branson, 1972). The changes would occur over the next 15 to 20 years.

The proposed spraying of 780 acres of sagebrush with 2,4-D on Ruple Cabin Allotment is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur until the suppressed grass species could respond to the reduced competition from brush.

The 780 acres proposed for treatment are currently yielding sediment at a rate of 0.1 acre-foot per square mile per year. There would be a slight increase in soil loss (PSIAC, 1968) for 1 to 3 years until the former ground cover density returns.

The proposal to install 5 miles of pipeline, 3 storage tanks, and 10 troughs, would provide additional watering areas for livestock. Bare soil would be exposed temporarily on 8.5 acres.

Current annual sediment yield varies between 0.1 and 1.0 acre-foot per square mile. Increased sediment yield from the 8.5 acres disturbed for installation of improvements would be 0.0013 acre-feet (2.2 cubic yards) annually for 1 to 3 years (PSIAC, 1968).

Decrease in sediment yield would contribute to meeting the objective of maintaining or improving watershed condition, except in the short-term on sagebrush control areas and around range developments.

EROSION CONDITION

The proposed spraying of 780 acres of sagebrush with 2,4-D on Ruple Cabin Allotment is expected to increase grass composition in the present sage-grass vegetation cover. A temporary reduction in ground cover would occur until the suppressed grass species could respond to the reduced competition from brush.

The 780 acres proposed for treatment are currently in slight erosion condition. The erosion condition would increase slightly for 1 to 3 years until the former ground cover density returns. The change would not be enough to be measured.

Maintaining the current erosion condition would contribute to meeting the objective to maintain or improve watershed condition.

SEEDING SUITABILITY

The proposal to spray 780 acres in Ruple Cabin Allotment with 2,4-D would increase the amount of grass in the vegetation composition. The increase would reduce dense stands of sagebrush and make forage available to livestock.

Limitations are slight for vegetation manipulation on areas proposed for treatment. The 780 acres in Ruple Cabin Allotment would probably cause a slight temporary reduction in ground cover for 1 to 3 years (BLM, 1976).

The improvement of grass on soils suitable for seeding in the areas proposed for sagebrush control would aid in meeting the objectives of improving or maintaining livestock forage and watershed condition.

Assessment

Anticipated changes in vegetation ground cover, composition, and intensity of use are factors influencing impacts to soils. The soil resource itself is basic to vegetation productivity, water yield and quality, and wildlife carrying capacity.

Because the planning unit currently has few erosion and other soil problems (Chapter 2 and Appendix II-2), and because no changes in current use are planned, it is expected that the impacts to the soil resource would be minor.

The analysis indicates that adverse impacts would occur only on small, localized areas, sediment yield would be reduced slightly, and soil compaction by livestock would not change.

Due to the small magnitude of impacts expected, it is difficult to predict measurable changes in existing rates of sediment yield, erosion conditions, or water salinity contribution for the soils of the planning unit. Some predictions have been made, however, as to whether the rates would increase or decrease from the existing condition by considering specific impacts as they would affect the factors that influence erosion.

Conclusions

Current soil conditions are expected to continue to improve slightly as a result of the alternative action.

Impact on Water Resources

The analysis of the impacts caused by no changes in grazing practices and related developments focuses on (1) water quantity and (2) water quality.

WATER RESOURCES ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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WATER QUANTITY

Existing improved management is proposed to continue on Red Creek, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain, comprising 39,538 acres of public land. Grass composition is expected to increase slightly and browse is expected to decrease. Increased vegetation ground cover would help improve watershed conditions.

It is proposed to install 5 miles of pipeline, 3 storage tanks, and 10 troughs, to provide additional watering areas for livestock. The water to be used in the proposed improvements originates from springs whose water does not leave the planning unit.

The proposal to spray 780 acres in Ruple Cabin Allotment with 2,4-D would increase the amount of grass in the vegetation composition. The increase would reduce dense stands of sagebrush and make forage available to livestock.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to change minimally, only a slight decrease in water yield would occur over the next 15 to 20 years (Branson, 1972). All four allotments would be affected.

Current consumptive water use on the planning unit is about 23 acre-feet annually. This amounts to 0.02 percent of the available water. Because the water proposed for use in the improvements does not currently leave the planning unit, the improvements would have no impact on total water yield.

The vegetation cover on 780 acres is expected to decrease slightly and water yield to increase for 1 to 3 years. The exact amount of increased water yield is not known. Because only 780 acres are involved, the increase is expected to be minimal.

WATER QUALITY

Continued improved grazing management is proposed on Red Creek and Ruple Cabin allotments, comprising 20,558 acres of public land. The composition of grass is expected to increase slightly and sediment yield to decrease slightly.

Currently three streams flow through these two allotments. The sediment carried by these streams would be reduced. The exact amount is not known (PSIAC, 1968; Branson, 1972). This reduction would occur gradually within 15 to 20 years.

Assessment

The alternative would not alter the water consumed by livestock in the planning unit and new water developments would distribute the water supply more evenly.

Chemical constituents of the surface waters are not likely to be changed by the alternative. Changes in erosion would not be great enough to produce a noticeable change in the chemical composition of the water. Most coliform contamination from livestock comes from use in or directly adjacent to the stream, so that downstream coliform levels would increase during periods of grazing, followed by a decline when livestock are removed.

Conclusion

No significant impacts would occur to the water resource.

Impact on Vegetation and Forage

This section describes the anticipated impacts which the alternative action would have on vegetation in the planning unit with the continuation on present management. Impacts on vegetation are interrelated with animal life, watershed, visual resources, and land use (livestock grazing).

Major impacts identified in this section include a change in plant composition from shrubby species to grass, on 33,940 acres. It is expected that vegetation ground cover would not reach the desired level (25 percent or greater) on 22 allotments under this alternative.

In this section, types and subtypes, composition and vegetation ground cover, key species, threatened and endangered species, forage production, forage condition, and trend in forage condition are used to derive the expected effects on vegetation production and conditions.

The presentation is made in three parts: 1) impact analysis, 2) assessment, 3) conclusions.

VEGETATION ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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TYPES AND SUBTYPES
(including Riparian Vegetation and Condition)

This alternative is to continue present management and level of use which means allotment-wide grazing would continue on 34 allotments (148,138 acres) and no grazing on one allotment (2,860 acres). Improved grazing management would continue on four allotments (39,538 acres). No activities are planned which would affect changes in vegetation type or subtypes.

The following vegetation types are present in the planning unit:

Type	Acres
Sagebrush	80,816
Pinyon-juniper	80,795
Conifer	14,565
Grass	5,324
Mountain shrub	5,378
Broadleaf trees	1,908
Greasewood	999
Riparian	751
Total	190,536

There would be no impact to types or subtypes.

Allotment-wide grazing on the Little Hole and Sears Canyon-Marshall Draw allotments allow the existing use to continue on the riparian vegetation on Davenport, Jackson, Crouse, or Sears Creek.

The 728 acres of riparian vegetation in good condition would be maintained since the same management which has continued for many years would not change.

The 23 acres of fair condition riparian vegetation along those small streams would not be improved to good since the livestock grazing management that has led to the fair condition of the riparian vegetation would continue (Ames, 1977).

Objectives identified for riparian vegetation to maintain the good condition would be met.

The objective to improve condition from fair to good on 23 acres of riparian vegetation would not be met.

COMPOSITION AND VEGETATION GROUND COVER

No livestock grazing (2,860 acres) (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment. Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs. An increase of about 49 elk AUMs is proposed.

Grass would continue to increase and shrubs decrease on 2,860 acres of public land in the Rye Grass Allotment because browse seedlings cannot become established in the grass cover. Though elk make heavier use of grass than deer, it is not expected that an increase of 49 elk AUMs use during winter and summer would stop increase in grasses (Heady, 1975). The exact percent composition change is unknown but it is not likely that big sagebrush which is presently 40 percent would become less than 20 percent in the composition. Vegetation ground cover would increase but still remain between 25 to 35 percent.

Continuation of allotment-wide grazing with use not to exceed 60 percent on key species on 34 allotments (148,138 acres) would perpetuate the current use on desirable forage species during the critical periods for growth and reproduction.

No change would occur in vegetation ground cover and composition on 33 of the 34 allotments where use of desirable forage species during the critical periods for growth and reproduction would continue. On the Bridgeport Allotment, however, because of the heavy stand of big sagebrush (55 percent) and low grass composition (16 percent), it is expected that composition of desirable grass would not reach 60 percent.

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
<u>COMPOSITION AND VEGETATION GROUND COVER (continued)</u>	

Continuation of improved grazing management on four allotments (39,538) would provide periodic rest for desirable vegetation during the growing season.

Sagebrush control on Hoy Mountain, Ruple Cabin, and Davis Draw-Crouse Reservoir, and Lambson is proposed on 1,650 acres. Helicopter spraying with 2,4-D on 1,260 acres of Hoy Mountain and Ruple Cabin and chaining of 400 acres on Davis Draw are proposed.

Desirable levels of vegetation ground cover and composition are currently being met on two allotments (Mail Draw, Sears Canyon-Marshall Draw) (11,190 acres--6 percent of public land in the planning unit).

The following listing shows which allotments in the planning unit would not meet vegetation ground cover and composition objectives after the alternative is implemented.

Allotments where composition of desirable plant species would not reach desirable levels (>60 percent composition) under this alternative:

- Bridgeport
- Beaver Dam
- Log Cabin
- Mame's Hole-Bear Hollow

Allotments where vegetation ground cover would remain at less than desirable levels (<25 percent ground cover) under this alternative:

- Bridgeport
- Bealer Basin-Diamond Gulch-Diamond Spring
- Cooper Draw

On the other allotments (Taylor Flat-Watson) an increase in vegetation ground cover would occur, and slight changes in composition are expected. Laycock (1967) found that continued use by livestock in spring favored sagebrush and decreased grass in northeastern Idaho. A similar response would be expected in the Taylor Flat-Watson Allotment, but big sagebrush would be expected to remain between 20 and 30 percent of the composition.

Periodic rest would favor growth of desirable vegetation on the four allotments, and vegetation ground cover would increase to or remain over 25 percent on all allotments (Morris, 1934). Rest would allow desirable species an uninterrupted critical growth and reproduction period. Composition of desirable vegetation would reach proposed levels, except on the Hoy Mountain Allotment, where composition of big sagebrush, or other desirable shrubs, would remain less than 20 percent. High percent of grass composition and low stock rates favor continued high levels of grass production which precludes establishment of browse seedlings.

The application rate would be two pounds of 2,4-D acid equivalent per acre. Application would be carefully supervised to assure that all precautions for 2,4-D use were being observed. Successful spraying which kills most of the big sagebrush would create a situation in which other desirable and key forage species can increase and become more productive. Where sagebrush exists in dense stands, it tends to tie up most available light, water, and nutrients. When the sagebrush is removed or reduced, it frees these necessities for plant growth and allows other plants to establish, grow, and reproduce. Plant species diversity would increase causing a change in vegetation composition.

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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COMPOSITION AND VEGETATION GROUND COVER (continued)

Davis Draw-Crouse Reservoir-Lambson
 Gadson Draw-Gerber Spring
 Highway
 Natural Lake
 Smokem-up
 Bates Spring
 Blair Basin
 East Cow
 Gadson
 Hatch Cove
 Hoy Flat
 Jackson Draw-Crouse Canyon-Dry Hollow
 Mame's Hole-Bear Hollow
 Offield Mountain
 Pot Creek
 School Bus
 Serviceberry Spring
 Cove
 West Cow

Should the alternative be implemented, objectives for vegetation ground cover and composition would be met on 8 allotments (62,835 acres--33 percent of public land in the planning unit).

KEY SPECIES

This alternative is to continue present range management and level of allocation. Allotment-wide grazing would continue on 34 allotments (148,178 acres). Improved grazing management would continue on four allotments (39,538 acres) and no grazing would continue on one allotment (2,860 acres). All components of the alternative would affect key species.

Eleven key species from three families (Poaceae, Asteraceae, and Rosaceae) have been identified for the Three Corners Planning Unit. Seven key species are grasses: bluebunch wheatgrass, Columbia needlegrass, crested wheatgrass, Indian ricegrass, Letterman needlegrass, needle-and-thread grass, and western wheatgrass. Four key species are shrubs: antelope bitterbrush, big sagebrush, black sagebrush, and true mountain mahogany.

Probable response of key species to existing and proposed grazing management.

	<u>Grass Key Species</u>	<u>Shrub Key Species</u>
<u>No Livestock Grazing</u>	increase ^a	decrease ^a
<u>Continue Allotment-Wide Grazing</u>		
Spring	decrease ^b	increase ^c
Spring-fall	static ^d	static ^d
Spring-Summer-Fall (begin in May or June)	static ^d	static ^d
Spring-Summer (begin in June)	static ^d	no shrub key species
<u>Continue Existing Improved Management</u>		
Rest Rotation	increase ^e	increase ex- cept for areas of big sage- brush control ^f
Deferred Rotation	increase ^g	static ^c
Deferred Rotation and Rest Rotation.	Increase ^{e,g}	Static ^{c,f}

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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KEY SPECIES (continued)

^aHeady, 1975, found in California on deer winter range that elimination of livestock grazing allowed grass to increase and browse to decrease.

^bLaycock, 1967; found that in northeastern Idaho, fall grazing can reduce sagebrush and favor grass species. A similar response is expected on these allotments.

^cFerguson (1979) has found that it is not likely that bitterbrush will increase with less than 18 months rest. Also, bitterbrush seedlings cannot compete effectively with grass and will not establish successfully on other than "scalped" or relatively bare areas. Sixty percent or less utilization of annual growth of bitter brush should not harm the plant under most conditions. In fact, utilization held at this level promotes hedging and protects flowers and fruits so that more seed matures.

^dThe present management has been in effect for several years and composition is not expected to change.

^eRatliff (1972) has found that rest rotation grazing in northern California has (1) improved vigor of the key forage species (Idaho fescus); (2) has increased basal cover of the better plants; (3) has allowed a higher successional stage as indicated by a better species composition; (4) increased number of grass seedlings; (5) increased litter cover and less soil is exposed; (6) increased herbage yield; (7) has reduced soil compaction and improved water absorption.

^fStudies in Wyoming (Heady, 1975) showed that sagebrush spraying successfully increased native grasses. Similar results would be expected by spraying 1,260 acres on the Hoy Mountain and Ruple Cabin Allotments.

^gMorris, 1974, found that implementation of deferred rotation grazing allowed grasses to increase.

Improved grazing management would allow periodic rest from grazing and would improve distribution of livestock and reduce grazing pressure, thereby improving conditions for key species. In areas where big sagebrush is controlled, key species and other desirable plants would establish and stabilize within 5 years after treatment. Predicted key species cover, composition, and distribution should be realized in 15 to 20 years.

References for predicted response of key species: Stoddard and Smith, 1955; Johnson, 1965; Heady, 1975; Dillon and Wallenmeyer, 1966; BLM, 1976; Morris, 1934; Ratliff, 1972.

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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THREATENED AND ENDANGERED

Threatened and endangered (plant species) are provided for by protective measures which are a required standard of this proposal. Special surveys would be conducted prior to construction of range developments and vegetation manipulation of plans would be altered if threatened and endangered plant species or their critical habitat could be affected.

The following threatened or endangered species have been identified in the planning unit. Penstemon acaulis (Scrophulariaceae), a candidate threatened species, and Parthenium ligulatum (Asteraceae) and Oxytropis obnapiformis (Fabaceae), proposed endangered species were collected near the mouth of Jessie Ewing Canyon in the Bridgeport Allotment in 1978. Arabis demissa variety languida (Brassicaceae), a candidate threatened species, was collected on the Antelope Flat-Goslin Mountain-Clay Basin Allotment in 1978. Cryptantha stricta (Boraginaceae), a candidate threatened species, is believed to be widespread in the Three Corners Planning Unit. However, it has been recommended by the BLM Vernal District Botanist that this species be removed from the candidate threatened species list. No available record verifies the occurrence of any other proposed, candidate or officially listed threatened or endangered plant species within the Three Corners Planning Unit (Neese, 1978 and England, 1979).

Construction disturbance could be the specific cause of any impacts. The following is a list of allotments with corresponding acres of potential disturbance from proposed range developments:

<u>Allotment</u>	<u>Acres</u>
Dry Creek-South Pot Creek-	
Wild Mountain	3.36
Hoy Mountain	480.00
Ruple Cabin	785.12
Total	1,268.48

Vegetation manipulation by spraying of 1,260 acres with 2,4-D is proposed on Hoy Mountain and Ruple Cabin allotments.

Though surveys would be conducted to identify critical habitat and location of individual threatened and endangered plants, a possibility remains that inadvertent loss of some individual plants may occur.

Vegetation management by any of the available methods would probably affect endangered or threatened plant species if they are in the area being treated. Broadcast treatments are more likely to unintentionally damage unknown populations of such plants than are selective methods of treatment. Herbicides are no exception. The sensitivities of all plants are not known; we must, however, assume a 2,4-D program would have an adverse effect on them (Waters, 1979).

A survey of potential habitat for threatened or endangered species (candidate, proposed or officially listed) would be conducted prior to taking any action that may affect these species. Should BLM determine that an officially listed species would be affected, formal consultation with the U.S. Fish and Wildlife Service would be initiated.

It may be impossible to locate all individuals in a population. Response characteristics of these threatened and endangered plant species cannot be identified at this time. Because of surveys, the standard design treatment of the alternative, and formal consultation with the Fish and Wildlife Service, it is not expected that the continued existence of any plant species would be jeopardized by the alternative.

FORAGE PRODUCTION

This alternative is to continue present range management and level of allocation. Allotment-wide grazing would continue on 34 allotments (148,138 acres) and improved grazing management would continue on four allotments (39,538 acres). No grazing would be permitted on one allotment (2,860 acres). One thousand two hundred and sixty acres of sagebrush spraying is proposed on two allotments.

Continuing existing grazing management would maintain forage production because management which has been in effect for many years and which has led to the present forage production. Spraying of sagebrush would kill sagebrush releasing moisture and soil nutrients for greater production of desirable forage species (Heady, 1975). This would result in a 67 AUM increase in production on Hoy Mountain Allotment and 109 AUMs on

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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FORAGE PRODUCTION (continued)

Ruple Cabin Allotment within 5 years (Heady, 1975). The spray would suppress sagebrush growth and release moisture and nutrients for greater production of desirable forage species (Heady, 1975). Continuation of grazing systems on the Dry Creek-South Pot Creek-Wild Mountain Allotment which are designed to allow rest from grazing during periods critical to growth on desirable forage plants, would result in an increase in production of 191 AUMs within 15 to 20 years (10 percent increase X 1,906 AUMs. This is a conservative estimate in as much as predictions are as high as 34 percent (Morris, 1934). The increase in production results because desirable forage species are expected to increase in size and density.

The following shows the expected forage production by allotment within 20 years after implementing the alternative.

Allotment	Present AUMs	Expected (20 years) AUMs
Hoy Mountain	781	848
Dry Creek-South Pot Creek- Wild Mountain	2,359	2,550
Ruple Cabin	2,941	3,050
All Other Allotments	<u>28,262</u>	<u>28,262</u>
Total	34,343	34,710

The objective to maintain forage production on 16 allotments (20,273 acres), and the objective to increase production on 20 allotments (146,648 acres) would not be met. Objectives would be met on three allotments for continuing improved management (Hoy Mountain, Dry Creek-South Pot Creek-Wild Mountain, and Ruple Cabin).

FORAGE CONDITION

This alternative is to continue present range management and level of allocation. One thousand two hundred and sixty acres of sagebrush spraying is proposed on two allotments which have existing improved management systems.

Continuing existing grazing management would be expected to maintain forage condition on 36 allotments. Spraying of sagebrush would improve 444 acres of fair forage condition range to good on Hoy Mountain Allotment within 5 years. The spray would suppress sagebrush growth and release moisture and nutrients for greater production of desirable forage species (Heady, 1975). The grazing systems that were implemented on the Ruple Cabin and Dry Creek-South Pot Creek-Wild Mountain allotments would improve forage condition from fair to good on 6,877 acres within 15 to 20 years (Morris, 1934; Ratliff, 1972).

Since the 8,415 acres in poor forage condition in the unit are in the pinyon-juniper and Douglas fir types, which are believed to be in ecological climax, the range in poor forage condition would not be expected to improve (Dwyer, 1975).

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

FORAGE CONDITION (continued)

The following are the areas of fair forage condition range, by allotment on which it is estimated that forage condition could be improved to good:

Allotment	Acres That Would be Improved
Hoy Mountain	444
Dry Creek-South Pot Creek-Wild Mountain	4,710
Ruple Cabin	2,167
All other allotments	0
Total	7,321

Present and expected forage condition 15 to 20 years after implementation of the proposal (acres total) is:

Condition	Present	Expected
Good	55,836	63,157
Fair	126,285	118,964
Poor	8,415	8,415

The objective to improve forage condition from fair to good on 25,022 acres or half of the currently fair condition range, exclusive of those acreages in the Douglas fir and pinyon-juniper types would not be met.

TREND IN FORAGE CONDITION

No livestock grazing (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment (2,860 acres). Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs.

Actual trend studies have been initiated on 5 of the 39 allotments in the planning unit. These studies show the following:

Allotments	Trend ^a	
	Improving	Static
Clay Basin-Antelope Flat-Goslin Mountain	19,275	9,027
Hoy Mountain	2,039	1,511
Red Creek	4,889	3,569
Ruple Cabin	12,100	0
Taylor Flat-Watson	4,826	7,471
Total	43,129	21,578

^aNo areas are declining.

Though composition may change in favor of grass over shrubs, the change would not be greater than that allowed in the objectives. It is expected that trend would remain static on the Rye Grass Allotment (2,860 acres).

Continuation of allotment-wide grazing on 34 allotments (148,138 acres) would perpetuate the current use of key forage species during the critical periods for growth and reproduction.

Trend would remain static on 32 (107,539 acres) of the 34 allotments where livestock grazing would continue allotment-wide. It is expected that the 4,826 acres in the Taylor Flat-Watson Allotment and 19,275 acres on the Clay Basin-Antelope Flat-Goslin Mountain Allotment would continue to improve.

VEGETATION ANALYSIS SECTION (concluded)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

TREND IN FORAGE CONDITION (continued)

Continuation of improved grazing management on four allotments (39,538 acres) would provide periodic rest for key forage species during the growing season.

Periodic rest on key forage species would favor their growth and trend would continue to improve on 14,137 acres of the following two allotments where trend studies are established.

Allotment	Acres
Hoy Mountain	2,039
Ruple Cabin	12,100
Total	14,139

Forage condition trend on 4,889 acres is expected to become static on the Red Creek Allotment because cattle have been introduced in the spring to preserve the existing grass-shrub composition.

An improving trend (on 9,419 acres) is expected to occur on the fair condition range, on Dry Creek-South Pot Creek-Wild Mountain Allotment.

The current forage condition trend is:

Improving	Static	Declining
38,240 (20%)	152,296 (80%)	0

Should this alternative be implemented, the following trend would be expected for the next 15 to 20 years:

Improving	Static	Declining
47,657 (25%)	142,879 (75%)	0

Assessment

Existing management systems are effective on 21 percent (39,538 acres) of the planning unit. These systems eliminate spring grazing year after year to allow plants enough time to develop fully. Summer rest is also given to plants on about 10 percent (20,000 acres) while livestock leave the planning unit for grazing on the National Forest.

It is apparent, from forage trend studies which represent varied conditions on the planning unit that range conditions have not been declining and, in fact, have been improving on about 40,000 acres (66 percent of the areas having trend data). In addition, opinions of people managing the area are that trends in other areas are improving. Vegetation is now rated as good on 55,836 acres (about 30 percent of the area). While 65 percent of the range is in poor and fair livestock forage condition, the only livestock grazing which is occurring on the 8,415 acres in poor condition is that designed to maintain the sagebrush stands on deer winter ranges. Rainfall is usually sufficient on 66 percent of the area to allow good plant growth. The average vegetation density is above 25 percent on 70 percent of the area and desirable and intermediate plants contribute more than 60 percent of the composition on 162,000 acres (83 percent of the area).

The judgment of professionals working in the area since the 1967 livestock adjudication indicate that with the present range management, vegetation conditions have been improving in the area. However, not all ranges have responded equally and many areas in the unit currently produce more forage than is needed to handle the permitted livestock.

Conclusion

It is estimated that the alternative to continue present management would continue the slow upward trends in both range and forage production. Livestock forage production is expected to continue to improve at about the same rate as it has since the adjudication when the present stocking rate was determined. In about 20 years nearly 35,000 AUMs of forage (367 AUMs increase) should be obtained as vigor, litter density, and species compositions improve. A moderate improvement in vegetation condition is predicted as factors (vigor, production, density) contributing to vegetation condition continuing to improve.

Impact to Animal Life

This alternative would provide an environment for animal life approximately equal to those conditions which presently exist. Impacts to vegetation and forage, as they relate to grazing and livestock manipulation, are the principal source of impacts to animal life.

Animal life population changes would affect recreation activities and economics.

ANIMAL LIFE ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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DEER

It is proposed to continue existing livestock management (allotment-wide grazing--34 allotments, no grazing --1 allotment, improved management--4 allotments) on 39 allotments. Impacts occurring would be caused specifically by a change from browse to grass on four allotments (Rye Grass, Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain).

Mule deer spring range would increase in quality on four allotments 33,940 acres due to a change from browse to grass. Betram, et al., (1977) found a strong preference by deer for both forbs and grasses during this season. The quality of summer, fall, and winter ranges would decrease over the same area according to Betram, et al. (1977), Knowles (1975), and Pac (1976). These changes would occur within 15 to 20 years. Quality of other range areas are not expected to change.

Also proposed is to initially and in the long-term allocate an additional 2,229 AUMs, year-long to deer.

Potential forage would be allocated for an initial increase of 1,081 deer on a 12 month basis. The probability of realizing this increase of animals is dependant upon management policies of UDWR and can probably not be reached because crucial deer winter range cannot support the increased numbers of deer.

Ten additional watering sites are proposed on two allotments.

Approximately 6,400 acres of deer range would be improved in quality due to the development of 10 additional water sites. This is based upon Hasley's (1956) findings that deer need one water site per square mile for optimum habitat conditions.

ELK

It is proposed to continue existing management (allotment-wide grazing--34 allotments, no grazing--1 allotment, and improved grazing--4 allotments) on 39 allotments. Impacts occurring would be caused specifically by a change from browse to grass on four allotments.

Elk summer and winter ranges would improve in quality on 33,940 acres due to a change from browse to grass. Boyd, (1970) found under all seasons, a strong preference by elk for grass dominated ranges. These changes would occur within 15 to 20 years.

Also proposed is to initially and in the long-term, allocate an additional 3,458 AUMs, year-long to elk.

Potential forage would be allocated for an increase of 542 elk on a 12-month basis. The probability of realizing this increase of animals is dependent upon management policies of UDWR.

Also proposed is to provide ten additional water sites on two allotments.

Water development would have an overall benefit to elk and their habitat. Leopold (1933) found an increase in water allows for better distribution of elk and thus better utilization of the increased forage allocation.

ANTELOPE

It is proposed to continue existing management (allotment-wide grazing on 34 allotments, no grazing on 1 allotment, and improved management on 4 allotments). Three of these allotments contain antelope.

Overall habitat qualities are not expected to change.

An additional 25 AUMs, year-long would be allocated to antelope.

Potential forage would be allocated for an increase of 20 antelope on a 12-month basis. The probability of realizing this increase of animals is dependant upon management policies of UDWR.

ANIMAL LIFE ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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UPLAND GAME

Under allotment-wide grazing on 34 allotments, 1 allotment would change from browse to grass. No change is expected on the remaining 33 allotments under this proposal.

Habitat conditions are rated fair to good for sage grouse, fair to good for cottontail rabbits, and fair for mourning doves (UDWR, 1979). Allotments changing from browse to grass would decrease habitat for sage grouse and cottontail, but would favor mourning dove.

Of the four allotments included under improved grazing management, the composition would generally change from browse to grass with adverse impacts to sage grouse and cottontail rabbits. The spraying of 1,260 acres of sagebrush on Ruple Cabin and Hoy Mountain would impact sage grouse habitat. Other development impacts would have no effect on upland game species.

The vegetation change by re-spraying would improve mourning dove habitat through grass seed production (Sanderson, 1977). Sage grouse could benefit if 20 to 30 percent of the sagebrush canopy is left (Wallsted, 1975). If only 10 percent of the canopy is left after spraying, the habitat would deteriorate (Wallsted, 1975).

THREATENED OR ENDANGERED SPECIES
(BALD EAGLES)

There are no components to the alternative which relates directly to the bald eagle.

Four allotments (Bridgeport, Taylor Flat-Watson, Red Creek, and Little Hole) support 12 to 18 wintering bald eagles (Wagner, 1977). Impacts resulting from allotment-wide grazing and improved management are expected to be minimal since eagles rely heavily on fish and waterfowl as a source of food (Spinar, 1976). The prey base is presently stable (UDWR, 1979) and not expected to change.

FISH

Fish habitat are expected to remain stable on allotments with continued allotment-wide grazing.

The section of Green River associated with continued allotment-wide grazing would continue in a stable condition. That section associated with improved grazing management in Red Creek Allotment is presently rated in good condition and this habitat would continue to improve. Red Creek is and would continue to be the principal cause of deteriorating habitat (USGS, 1971-1976).

Continuing allotment-wide grazing would result in little or no change in the fisheries habitat.

WATERFOWL

Changes are not proposed in this alternative which would change waterfowl habitat.

Waterfowl habitat condition is rated poor to fair on 10 allotments (7,621 acres). No change would result from this alternative.

NON-GAME MAMMALS

Continuing existing improved management grazing systems with their proposed sagebrush control projects would cause a vegetative change in favor of grasses.

The specific impacts to the 43 species of non-game mammals in the unit are not identifiable. Areas of sagebrush conversion (1,260 acres) would, however, have a degree of both adverse and beneficial impacts to primary consumers (herbivores) and secondary consumers (carnivores).

NON-GAME BIRDS

The continuation of present improved management systems along with sagebrush control projects would cause a change in the vegetative composition. This change would mainly favor grasses.

Impacts are unquantifiable for the 141 species of non-game birds in the unit. Vegetation changes would be beneficial to some birds while adversely affect others.

ANIMAL LIFE ANALYSIS SECTION (concluded)

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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REPTILES AND AMPHIBIANS

Continuing the present improved management systems and sagebrush control projects would cause vegetative type conversion favoring grasses which would in turn cause changes in the primary and secondary food chain users which would cause a change in the prey base.

No quantifiable impacts can be determined for the 6 species of amphibians and 14 species of reptiles which exist on the planning unit.

INVERTEBRATES

Vegetation changes would occur resulting from continued intensive grazing management and continued allotment-wide grazing.

No data is available on species occurrence habitat requirements of invertebrates, however, Morris (1967) found that selected insects were consistently adversely affected by any degree of grazing pressure. Morris also found a direct correlation in the diversity of insects relating to the diversity of vegetative composition. This would indicate that any increased grazing pressure would adversely affect invertebrates and intensive grazing management would reduce the impact.

Impact to Cultural Resources

This section deals with the effect of this alternative on cultural resources. Ground-disturbing actions resulting from the construction and use of range developments could adversely affect cultural resources. However, any adverse impact to significant sites would be mitigated in accordance with the National Historic Preservation Act of 1966.

CULTURAL RESOURCES ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
The range developments involve ground-disturbing actions resulting from the construction and use of water pipelines, water troughs, and water storage tanks.	Three sites have been recorded in one of the allotments scheduled for range developments. Limited cultural resource work has been done in the remaining two allotments scheduled for range developments, but additional sites are assumed to exist in the area. Ground disturbance associated with range developments could damage or destroy cultural resources, but mitigation included in the proposal would prevent adverse impacts to significant sites. Regardless of mitigation, adverse impacts may occur in isolated cases on 8.48 acres.

Impact to Visual Resources

Structures and disturbance from proposed range developments and vegetation manipulation are the source of visual resources impact. If design features, as described in Chapter 1, are followed, no reduction in visual quality would be expected.

VISUAL RESOURCES ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
Fourteen range developments and 1,260 acres of vegetation manipulation are proposed.	Visual Resource Management (VRM) Class II, III, IV, and V areas have been identified in the planning unit. The management objective for each VRM class allows a different degree of visual modification in the landscape. Evidence of livestock management is common in the form of fencelines, water developments and chained areas. All range developments and vegetation manipulations would be located in Class III and V areas. Structures and disturbance from proposed range developments and vegetation manipulations would cause a visual modification in the landscape, but all visual modification would be compatible with the management objective for the VRM class area in which it occurs.

Impact to Recreation Resources

The source of impact on recreation would include structures and disturbance from proposed range developments and vegetation manipulation. These could reduce the aesthetic qualities of recreation use areas, impede recreational access, and alter numbers of wildlife available for hunting and fishing. The analysis assumes that with present wildlife numbers, the planning unit provides a certain amount of success, satisfaction, and hunter-fisherman days. With any increase or decrease in wildlife numbers, the planning unit would provide for a direct increase or decrease in hunter success, satisfaction or hunter-fisherman days. It is not assumed, however, that numbers of hunters and fishermen would actually increase or decrease.

RECREATION ANALYSIS SECTION

Relationship to the Alternative

Existing Environment, Probable Impacts, and Affected Area

INVENTORIED RECREATION SITES

Ten range developments and 1,260 acres of vegetation manipulation are proposed in allotments with inventoried recreation sites.

The planning unit contains 31 inventoried recreation sites within 21 allotments. Hoy Mountain and Ruple Cabin allotments contain three inventoried recreation sites that could be directly impacted by range developments or vegetative manipulations. The recreational value of inventoried sites could be reduced or destroyed if sites are directly impacted.

OFF-ROAD-VEHICLES ACCESS

No fencing is proposed.

No change in available access would occur.

FISHING

No change in fisheries habitat would occur.

No change in fisherman success, satisfaction, or days would occur.

HUNTING

This alternative would allocate 2,229 additional AUMs for deer initially, and 2,229 over the long-term, providing for an increase in 1,080 deer initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting deer. With the present hunter success ratio, the potential increase in deer numbers would provide an additional 4,127 deer hunter days over the short-term and long-term.

This alternative would allocate 3,458 additional AUMs for elk initially and over the long-term, providing for an increase in 542 elk initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting elk. With the present hunter success ratio, the potential increase in elk numbers would provide for an additional 2,577 elk hunter days over the short-term, and long-term.

This alternative would allocate 25 additional AUMs for antelope, resulting in a possible increase of 20 antelope on a 12-month basis. It would decrease sage grouse and cottontail and increase mourning dove habitat.

The planning unit provides opportunities for hunting angelope, sage grouse, cottontail, mourning dove, and waterfowl. Little affect is anticipated on hunter success, satisfaction and days.

Impact to Livestock Grazing

This section deals with the anticipated impacts which continuing the present grazing management and levels of allocation would have on livestock grazing in the planning unit.

LIVESTOCK GRAZING ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
Continuing the present allotment-wide grazing on 34 allotments and no grazing on one allotment would result in no change in livestock grazing. This part of the proposal would maintain present livestock grazing.	Livestock numbers and present grazing (3,846 cattle and 17,078 sheep AUMs) would remain the same on 34 allotments (150,998 acres).
Continuing existing improved grazing management on four allotments, including 1,260 acres of spraying and other developments, would result in a long-term increase of 367 AUMs on Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments. No increase would take place on Red Creek.	Additional forage allocated to livestock would result in a long-term increase of 67 cattle on Hoy Mountain, Ruple Cabin, and Dry Creek-South Pot Creek-Wild Mountain allotments: 31,080 acres (BLM, 1976). This increase would be added to a base of 1,223 cattle which are presently grazing on the above three allotments. The improved grazing management, including sagebrush spraying and water developments, would lead to improved forage conditions (Pechanec, 1965 and Stoddard, Smith, and Box, 1975) which would in turn lead to increased weight gains on calves. Cook (1966) found that calves grazing on improved ranges would gain up to 0.6 pounds per day more than calves grazing on adjacent unimproved ranges.
Should the alternative be implemented, objectives of increasing livestock use by 1,860 AUMs on 20 allotments would not be met. There would be a deficit of 1,493 AUMs.	

Conclusion

There are two impacts identified in the analysis: (1) increased allocation of forage would allow cattle numbers to increase on three allotments now under improved management and (2) the amount of red meat being produced on the planning unit from calves would increase with the improvement of forage condition resulting from the continuation of improved grazing management and the proposed range improvement projects.

Impact to Special Designation Areas

Structures and disturbance from the range developments and vegetation manipulation would not affect Wilderness, Wild and Scenic Rivers, and Outstanding Natural Area values because of the design feature in Chapter 1.

SPECIAL DESIGNATION AREAS ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
<u>WILDERNESS</u>	
Sixteen range developments and 1,260 acres of vegetation manipulation are proposed.	The initial step in BLM's wilderness review process has been completed within the planning unit and 11 wilderness inventory units have been identified within all or part of 25 allotments. Portions of the three allotments where range developments and vegetation manipulation are proposed (Hoy Mountain, Dry Creek-South Pot Creek-Wild Mountain, Ruple Cabin) contain wilderness inventory units. No impact would occur due to Chapter 1 mitigation.
<u>WILD AND SCENIC RIVER</u>	
No developments are proposed within the river corridor.	This alternative would not affect the river's suitability for designation.
<u>OUTSTANDING NATURAL AREA</u>	
No developments are proposed within Crouse Canyon.	This alternative would not affect the canyon's suitability for designation.

Impacts to Land Use Plans

Since state and local governments also have jurisdiction in the Three Corners Planning Unit, changes made in present grazing operations and practices are of concern to them. The analysis in this section deals with the relationship between existing land use plans, controls, and constraints and the alternative action. No conflicts between this action and existing plans were identified.

LAND USE PLANS ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
None of the zoning designations applied to the area conflict with livestock grazing or range improvement programs. The policies of the Utah Division of State Lands are consistent with the proposed use of the area's resources.	The planning unit is currently covered by three county zoning ordinances.

Impact to Economic Conditions

The livestock industry, including the planning unit operators affected by this alternative would make up 3.4 percent of the total personal income in Uintah and Daggett counties. The income generated by of the ranchers operating on the planning unit accounts for 63 percent of the total livestock income and 0.5 percent of the total personal income in the two counties. Therefore, the influence which this alternative would have on the state and regional economics is considered insignificant and is not pursued further.

ECONOMIC CONDITIONS ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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INCOME TO SMALL OPERATOR

Under this alternative, the livestock operators would retain the same allotments and 190 AUMs (27 cattle) would be added to the Ruple Cabin Allotment.

Twenty-four livestock operators would continue to use the 12 allotments they presently have. The additional AUMs would calculate to 4.5 AUMs (one cow) for the average small operator. The typical small ranch net income per animal unit is \$14.20.

The estimated existing and projected budget for the average rancher with 970 AUMs and 82 AUs would be:

	<u>Existing Situation</u>	<u>Alternative</u>
Gross Income	\$8,885.00	\$8,995.00
Total Costs	\$7,735.00	\$7,830.00
Net Income	\$1,150.00	\$1,165.00

INCOME TO MEDIUM OPERATOR

Under this alternative, the livestock operators would retain the same allotments and the same amount of forage as shown in Chapter 2 for the existing situation.

Fourteen livestock operators would continue to use the 15 allotments they presently use. The additional AUMs would calculate to 16 AUMs (four cattle) for the average medium operator. Using the average net loss of \$30.87, the estimated existing and the projected budget with 2,709 AUMs and 228 AUs, would be:

	<u>Existing Situation</u>	<u>Alternative</u>
Gross Income	\$39,006.00	\$39,180.00
Total Costs	\$45,920.00	\$46,125.00
Net Loss	\$ 6,914.00	\$ 6,945.00

INCOME TO LARGE OPERATOR

Under this alternative, the livestock operators would retain the same allotments and 36 AUMs (7 cattle) would be added to the use of Dry Creek-South Pot Creek-Wild Mountain Allotment by one large operator.

Seven livestock operators would continue to use the 12 allotments they presently use. The additional use of one cow per operator for the average large operator, computed at the rate of \$97.20) is shown below.

The estimated existing and projected budget for the average large rancher, with 8,462 AUMs and 706 AUs, would be:

	<u>Existing Situation</u>	<u>Alternative</u>
Gross Income	\$120,060.00	\$120,230.00
Total Costs	\$ 63,016.00	\$ 63,105.00
Net Income	\$ 57,044.00	\$ 57,141.00

Conclusions

The present and expected net income for ranch operators are shown for each of the three ranch sizes.

	<u>Existing Situation</u>	<u>Alternative</u>
Small Operator	\$ 1,150.00	\$ 1,165.00
Medium Operator	\$-6,914.00	\$-6,945.00
Large Operator	\$57,044.00	\$57,141.00

The total net income of the livestock operators would be \$102,153.00.

RECREATIONAL INCOME ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
This alternative would allocate 2,229 additional AUMs for deer. Potential increase in deer numbers would provide an additional 4,127 deer hunter days.	It is estimated that 14,213 hunter days on the planning unit presently produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County Area. Based on the present estimated value of hunter days of \$49.94, the additional hunter days would provide \$334,798.00 of additional gross income to the area.
The alternative would also allocate 3,458 additional AUMs for elk. Potential increase in elk numbers would provide an additional 2,577 elk hunter days.	This would provide an additional net income of \$223,199.00 for the two county area.

Conclusion

The predicted net income for recreation hunting would be increased from \$473,178.00 per year to \$1,031,175.00 (120 percent increase annually in the two county area).

SOCIAL ATTITUDES ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
The alternative would provide the same amount of forage.	The ranchers would continue to believe that federal government employees do not adequately understand grazing, wildlife, soil, and water problems in the planning unit. The local people would have stronger feelings that decisions are being thrust upon them which do not reflect their best interests. The implementation and enforcement of other management tools could meet with opposition from local operators. However, any proposal to improve livestock forage (i.e., chaining or burning) would be strongly supported by permittees.
Increased forage allocation to big game would allow big game numbers to increase.	The high value which is placed on the ranching way of life would continue, even though very few people are involved in or remain in this profession.
	The ranchers would find the trespass and access demands to use public lands increasing as wildlife numbers increase. Conflicts with off-road vehicle users would also increase.

Conclusions

Most of the existing attitudes would continue, as little would be done by the alternative action to influence people.

D. CONTINUE EXISTING MANAGEMENT WITH 50 PERCENT REDUCTION IN THE PROPOSED LEVEL OF LIVESTOCK GRAZING ALLOCATION

1. Description of the Alternative

a. Purpose and Objectives

The purpose of including this alternative is to evaluate the impacts of substantially reducing livestock use. More than sufficient vegetation would be provided to enhance wildlife habitat, visual resources, recreation and watershed protection.

b. Forage Allocation

A 50 percent reduction in the initial level of allocation for the proposed action would be made on each allotment. The allocation of forage to livestock would be 9,731 AUMs. The number of AUMs that would be allocated to big game and the number of AUMs remaining for watershed protection and enhancement of visual resources and recreation are summarized on Table 8-11 and listed by allotment on Appendix VIII-6.

c. Components of the Alternative Action

Under this alternative, existing management would be continued on all allotments (see Table 8-11 and Appendix VIII-6). No allotments would be combined but allotments are grouped under this alternative for comparability of data. No further developments or vegetation manipulation would be done for management of livestock. Riparian habitat would be fenced along 3.5 miles of shoreline. Any increases in forage production which may result from light grazing pressure would be allocated to enhancement of other resources.

d. Monitoring and Study Programs

The alternative action would include a monitoring and study program to measure the effects as plant composition and ground cover of a 50 percent reduction in the proposed level of livestock use. Evaluations would be made at the conclusion of each grazing season. Four primary studies are basic to this evaluation: actual grazing use, vegetation utilization, range condition and trend, and climate (BLM Manual Section 4413.3). In addition, collection of data on wildlife habitat, riparian vegetation and aquatic habitat utilization and trends, and watershed condition would be done when pertinent to the resource values of the allotment.

If evaluation procedures determine that the vegetation resource is not being protected, modification to the alternative action would occur. Such modifications could include changes in the grazing system, livestock numbers, season of use, additional range developments, or any feasible combination of adjustments. Modifications would require preparation of an environmental assessment record or, dependent on significance, a supplement to this environmental statement.

e. Standard Design, Construction, and Operation Features

The standard design, construction, and operation features described in Chapter 1 would be applied to the 3.5 miles of fence that would be installed to protect riparian vegetation.

TABLE 8-11

Summary of Existing Forage Use and Alternate Forage Allocation^a
For Livestock Grazing at 50 Percent of the Proposed Level of Livestock Allocation

Alternative Action Component and Subcomponent	Forage Production AUMs	Existing Livestock and Big Game Grazing Situation					Alternative Forage Allocation (AUMs)		
		Present Livestock Use ^b				Est. Current Wildlife Use (AUMs)			
		Kinds	No.	AUMs Pref. ^c	AUMs Actual		Livestock ^d	Big Game	Watershed and Other Uses ^e
No Livestock Grazing (1 allotment)	508	0	0	0	0	436	0	508	0
Continue Allotment- wide Grazing (17 allotments)	26,270	Shp. Cat.	17,078 3,845	11,454	9,523	8,925	7,061	13,816	5,393
Spring (2 allotments)	2,935	Cat.	84	139	688	1,411	570	1,796	569
Spring and Fall (9 allotments)	6,232	Shp.	14,388	2,731	1,633	949	1,756	3,501	975
Spring, Summer, Fall (21 allotments)	16,657	Shp. Cat.	2,690 3,326	8,310	6,928	6,398	4,598	8,347	3,712
Spring, Summer (2 allotments)	446	Cat.	435	274	274	167	137	172	137
Continue Existing Improved Management (4 allotments)	7,565	Cat.	1,223	4,447	4,429	1,697	2,670	2,446	2,449
Rest-Rotation (2 allotments)	2,265	Cat.	175	552 ^d	1,201	731	612	1,041	612
Deferred Rotation (1 allotment)	2,359	Cat.	398	1,446	1,021	646	790	913	656
Deferred Rotation and Rest Rotation (1 allotment)	2,941	Cat.	650	2,449	2,207	320	1,268	492	1,181
TOTAL	34,343	Shp. Cat.	17,078 5,069	15,901 ^c	13,952	11,058	9,731	16,770	7,842

^aAppendix VIII-1 contains the details of the existing forage use and proposed forage allocation; it also contains additional explanatory footnotes.

^bNo. = Number of animals, Cat. = cattle, Shp. = sheep, Pref = Preference, Actual = 5 year average use.

^cDoes not include non-renewable allocation of 1,672 AUMs.

^dRepresents 50 percent of the initial level of livestock use proposed in Chapter 1.

^eRepresents the difference between forage production and total AUMs allocated to big game and livestock.

f. Development and Maintenance Costs

This alternative would incur costs associated with implementation and management of a reduction program. The livestock operator would also have costs associated with maintenance of existing range developments, such as fences, spring developments, and water pipelines. The costs would primarily be encountered in the following areas:

1. Administrative costs of implementing the alternative.
2. Design and construction of required fencing.
3. Maintenance of existing range developments.
4. Livestock use supervision, monitoring, and evaluation of the alternative once implemented.

Construction of required fencing would cost an estimated \$11,200 (based on \$3,200 per mile of fence). Annual maintenance of existing range developments would cost an estimated \$10,000 for BLM and \$15,000 for the livestock operators.

g. Implementation

It is anticipated that implementation of this alternative could be accomplished within one year following filing of the final environmental statement. Reductions would be made on all allotments concurrently. Construction of fences would be complete within one year.

h. Administration

Administration and management of the alternative action would be accomplished through standard BLM operating procedures. Each range user would be issued term permits through the BLM Vernal District Office. These would specify allotment, season, numbers, and kind of livestock.

Livestock grazing use would be supervised throughout the year. Marking of livestock (preferred methods would be ear tagging or paint marking) to monitor movement of livestock and ensure proper use of forage would be required. Changes in use requested by the livestock operator, which are outside the limits of the alternative action, but are consistent with management objectives, must be requested in writing and approved in advance of the grazing period. Grazing use outside the limits of the alternative action and without prior authorization would be considered trespass. If trespass should occur, action would be taken by BLM to assure that it is eliminated and that payment is made for damages.

The BLM would also make necessary adjustments in the range management program during drought or other emergencies. In no case, would forage utilization by livestock be allowed to exceed an average of 60 percent of key species.

2. The Environmental Impacts of the Alternative

Introduction

In order to conduct an analysis, and to make future impact projections, certain assumptions and analysis guidelines were used:

1. The alternative would be fully implemented and monitoring studies would be carried out as indicated.
2. Preventative measures listed in Chapter 1 would be carried out as construction stipulations.
3. Proposal assumptions and projections in Chapter 1 would be applicable to this alternative.
4. The alternative would provide for control of intermixed state lands only to the extent provided in existing and/or future agreements between the state, the livestock operators, and BLM; however, impacts to state lands would not be treated separately in the analysis.
5. The proposal would not involve BLM control over private lands which are intermixed within the livestock allotments. Due to lack of specific data for these private lands, a detailed analysis would be impossible.

Climate, air quality, topography, and geology are not discussed because no major impacts would occur to these resources. Other resource components are introduced and analysis procedures and assumptions given for each resource component.

Impact to Soils

The alternative was analyzed to determine the extent to which it would affect the soil resource. Included are sediment yield, erosion condition, and soil salinity. Seeding suitability is not discussed as no developments would be installed.

Anticipated changes in vegetation ground cover, composition, and intensity of use are factors influencing impacts to soils. The soil resource itself is basic to vegetation productivity, water yield and quality, and wildlife carrying capacity.

SOILS ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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SEDIMENT YIELD

A 45 percent reduction in livestock grazing is proposed on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase to at least 25 percent on all allotments except Bridgeport where cover would increase, but by less than 25 percent. This would improve watershed conditions.

Sediment yield currently ranges between 0.1 and 0.5 acre-feet per square mile per year. Ground cover of vegetation would increase. Sediment yield could decrease by as much as 8.8 acre-feet annually from 0.20 to 0.17 acre-feet per square mile (PSIAC, 1968; Branson, 1972). All allotments would be affected and the changes would occur over the next 15 to 20 years.

EROSION CONDITION

Vegetation ground cover objectives would be met on all allotments but Bridgeport as additional forage is left standing each year.

Although current erosion condition is slight, the erosion condition would improve as more ground cover accumulates on soil.

SOIL SALINITY

A 45 percent reduction in livestock grazing is proposed on Clay Basin-Antelope Flat-Goslin Mountain Allotment. The proposal would increase grass and decrease brush composition and the vegetation cover would increase. This would improve watershed conditions.

Soils on 15,520 acres within this allotment are slightly saline. The expected increase of grass composition and the increase in vegetation cover would decrease salt laden sediment yield within 20 years. The exact amount is not known.

Assessment

A 45 percent reduction in livestock grazing on 187,676 acres would result in a decrease of about 9 acre-feet of sediment annually, in the next 15 to 20 years. Soils on 15,520 acres are slightly saline, thus under this proposal the expected increase in vegetation cover could decrease the saline sediment yield within 20 years.

Because the planning unit currently has few erosion and other soil problems, and because the alternative action involves reduction in livestock use, it is expected that the impacts to the soil resource would be minor.

Conclusion

No measureable impacts would occur.

Impact to Water Resources

The water resources analysis of the impacts caused by the alternative focuses on (1) water quantity and (2) water quality.

WATER RESOURCES ANALYSIS SECTION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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WATER QUANTITY

A 45 percent reduction in livestock grazing is proposed on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase and sediment yield to decrease. This would improve watershed conditions.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to increase, water yield would decrease over the next 15 to 20 years (Branson, 1972). The exact amount is not known but it is expected to be slight. The 38 allotments would be affected.

WATER QUALITY

A 45 percent reduction of livestock grazing is proposed on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase and sediment yield to decrease. This would improve watershed conditions.

The sediment load of these streams would be reduced gradually over a period of 15 to 20 years. The exact amount of reduction is not known.

Construction of 3.5 miles of fence, to protect riparian areas, is proposed in Little Hole and Sears Canyon-Marshall Draw allotments along Davenport, Jackson, Crouse, and Sears Creeks. Riparian vegetation would improve from fair to good. Watershed conditions would be maintained or improved.

Because riparian vegetation condition is expected to improve along 3.5 miles of stream, the levels of orthophosphate would increase as a result of increased amounts of decaying vegetation (EPA, 1976). The exact amount of this increase is not known, but levels are currently high and, at times, exceed state standards. This change would take place gradually over 15 to 20 years.

Assessment

Chemical constituents of the surface waters are not likely to be changed by the alternative since the chemical composition is dependant to a large extent on source of water and the geological substrata. Changes in erosion would not be great enough to produce a noticeable change in the chemical composition of the water. Most coliform contamination from livestock comes from use in or directly adjacent to the stream, so that downstream coliform levels would increase during periods of grazing, followed by a decline when livestock are removed.

Conclusion

No measureable impacts would occur.

Impact on Vegetation

This section analyzes the anticipated impacts which the alternative would have on vegetation in the planning unit. Impacts on vegetation are inter-related with animal life, watershed, visual resources, and livestock grazing.

Grass is expected to increase and big sagebrush decrease on about 116,238 acres of the planning unit. On those allotments where no livestock grazing would be allowed or improved management would continue. It is anticipated that a change from sagebrush to grass would occur within 15 to 20 years. Where existing allotment-wide grazing would continue, changes in composition are not expected. Where spring cattle grazing has been introduced, browse is expected to increase.

In this section, types and subtypes, composition and vegetation ground cover, key species, threatened and endangered species, forage production, forage condition, and trend in forage condition are used to derive the expected effects on vegetation production and conditions.

The presentation is made in three parts: 1) proposed action, its impacts and areas affected, 2) assessment, 3) conclusions.

VEGETATION ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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TYPES AND SUBTYPES
(including Riparian Vegetation and Condition)

No activities are planned which would alter or affect type or subtypes in this alternative.

The following vegetation types are present in the planning unit:

<u>Type</u>	<u>Acres</u>
Sagebrush	80,816
Pinyon-juniper	80,795
Conifer	14,565
Grass	5,324
Mountain shrub	5,378
Broadleaf trees	1,908
Greasewood	999
Riparian	751
Total	190,536

There would be no changes in types or subtypes.

The 23 acres of riparian vegetation in fair condition would be fenced to exclude livestock.

The 23 acres of fair condition riparian vegetation would be improved to good since it would be fenced to exclude livestock. Winegar (1977) found in eastern Oregon that the condition of riparian vegetation improved when livestock grazing was excluded because the size and density of individual plants increased.

Objectives identified for riparian vegetation to maintain the good condition and improve the fair to good would be met.

COMPOSITION AND VEGETATION GROUND COVER

No livestock grazing (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment (2,860). Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs. An increase of about 49 elk AUMs is proposed.

Grass would continue to increase and shrubs decrease on 2,860 acres of public land in the Rye Grass Allotment. This is in line with results on other wildlife (deer) ranges where livestock grazing has been eliminated (Heady, 1975). Though elk make heavier use of grass than deer, it is not expected that an increase of 49 elk AUMs use during winter and summer would stop increases in grasses. The exact percent composition change is unknown but it is not likely that big sagebrush (now 40 percent) would become less than 20 percent in the composition. Vegetation ground cover would increase but still remain between 25 to 35 percent.

Continuation of allotment-wide grazing with a reduction of 39 percent of livestock grazing allocation on 34 allotments (148,138 acres) would significantly reduce the current use on desirable forage species during their critical periods for growth and reproduction.

It is expected that vegetation ground cover would increase to, or be maintained at, at least 25 percent on 33 of the 34 allotments where use of desirable forage species during the critical periods for growth and reproduction would be reduced. Composition of desirable vegetation would be met, except on the Clay Basin-Antelope Flat-Goslin Mountain, Gadson, Offield Mountain, Hoy Mountain, and Red Creek allotments where big sagebrush would be reduced or remain below 20 percent of the composition due to heavy big game use and reduced use on grass.

Because of the heavy stand of big sagebrush and low grass composition, it is expected that composition would not change in the Bridgeport Allotment.

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaCOMPOSITION AND VEGETATION GROUND COVER (continued)

Continuation of improved grazing management, and reduction of 40 percent of the allocated livestock use, on four allotments (39,538 acres) would provide periodic rest for desirable vegetation during the growing season.

Desirable levels of vegetation ground cover and composition are currently being met on two allotments (Mail Draw, Sears Canyon-Marshall Draw) (11,190 acres--6 percent of public land in the planning unit).

The Bridgeport Allotment is the only allotment where vegetation ground cover and desirable composition levels would remain below those desired (>60 percent desirable composition) (<25 percent vegetation ground cover).

Should the proposal be implemented, objectives for vegetation ground cover and composition would be met on 33 allotments (134,008 acres--70 percent of public land in the planning unit).

Periodic rest and reduced use would favor growth of desirable vegetation on the four allotments, and vegetation ground cover would increase to or remain over 25 percent on all allotments (Morris, 1934). Composition of desirable vegetation would reach proposed levels, except on Red Creek Allotment (8,425 acres of deer winter range) where composition of big sagebrush, or other desirable shrubs, would remain less than 20 percent.

KEY SPECIES

This alternative proposed a 50 percent reduction in livestock allocations.

Eleven key species from three families (Poaceae, Asteraceae, and Rosaceae) have been identified for the Three Corners Planning Unit. Seven key species are grasses: bluebunch wheatgrass, Columbia needlegrass, crested wheatgrass, Indian ricegrass, Letterman needlegrass, needle-and-thread grass, and western wheatgrass. Four key species are shrubs: antelope bitterbrush, big sagebrush, black sagebrush, and true mountain mahogany.

Probable response of key species to existing and proposed grazing management follows (see Key Species section of Chapter 3 for references and rationals:

	<u>Grass Key Species</u>	<u>Shrub Key Species</u>
<u>No Livestock Grazing</u>	increase	decrease
<u>Continue Allotment-Wide Grazing</u>		
Spring	increase	static
Spring-fall	increase	static
Spring-Summer-Fall (begin in May or June)	increase	static
Spring-Summer (begin in June)	increase	static
<u>Continue Existing Improved Management</u>		
Rest Rotation	increase	increase except for areas of big sagebrush control.
Deferred Rotation	increase	static
Deferred Rotation and Rest Rotation	increase	static

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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KEY SPECIES (continued)

In allotments where livestock allocation would be reduced by 50 percent, an increase in key grasses would be expected. Predicted key species cover, composition, and distribution should be realized in 15 to 20 years.

THREATENED AND ENDANGERED SPECIES

Threatened and endangered plants are provided for by protective measures which are a required standard of this proposal. Special surveys would be conducted prior to construction of range developments and vegetation manipulation and alteration of plans would be required if species or their critical habitat could be affected.

The following threatened or endangered species have been identified in the planning unit. Penstemon acaulis (Scrophulariaceae), a candidate threatened species, and Parthenium ligulatum (Asteraceae) and Oxytropis obnapiformis (Fabaceae), proposed endangered species were collected near the mouth of Jessie Ewing Canyon in the Bridgeport Allotment in 1978. Arabis demissa variety languida (Brassicaceae), a candidate threatened species, was collected on the Antelope Flat-Goslin Mountain-Clay Basin Allotment in 1978. Cryptantha stricta (Boraginaceae), a candidate threatened species, is known to be widespread in the Three Corners Planning Unit. However, it has been recommended by the BLM Vernal District Botanist that this species be removed from the candidate threatened species list. No available record verifies the occurrence of any other proposed, candidate or officially listed threatened or endangered plant species within the Three Corners Planning Unit (Neese, 1978 and England, 1979).

Construction disturbance could be the specific cause of impacts. The following is a list of allotments with corresponding acres of potential disturbance from proposed range developments on which T&E species could be impacted:

<u>Allotment</u>	<u>Acres</u>
Little Hole	4.0
Sears Canyon-Marshall Draw	3.0
Total	7.0

Though surveys would be conducted to identify critical habitat and location of individual plants, a possibility remains that inadvertent loss of some individual plants may occur.

A survey of potential habitat for threatened or endangered species (candidate, proposed or officially listed) would be conducted prior to taking any action that may affect these species. Should BLM determine that an officially listed species would be affected, formal consultation with the U.S. Fish and Wildlife Service would be initiated.

It may be impossible to locate all individuals in a population. Response characteristics of these threatened and endangered plant species cannot be identified at this time.

FORAGE PRODUCTION

This alternative proposes a 45 percent reduction in livestock forage allocation.

Slight changes in forage production would be expected on the nine allotments (45,390 acres) on which livestock grazing would remain at essentially the same level as it has the past 5 years (actual use see Appendix VIII-6) (Dwyer, 1975).

Forage production would be expected to increase by at least 10 percent of the inventoried production on 30 allotments (145,146 acres) where livestock grazing would be reduced by approximately 45 percent because grazing on desirable forage species would be reduced (Cook, 1966).

The following shows the expected AUMs of forage production by allotment within 20 years after implementing the alternative:

VEGETATION ANALYSIS SECTION (continued)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

FORAGE PRODUCTION (continued)

Proposed Action Sub-Component and Allotment	Present AUMs	Expected (20 years) AUMs
<u>CONTINUATION OF EXISTING MANAGEMENT</u>		
<u>No Livestock Grazing</u>		
Rye Grass	508	508
<u>Continue Allotment-Wide Grazing</u>		
Bridgeport	794	833
Taylor Flat-Watson	2,141	2,264
Bealer Basin-Diamond Gulch-		
Diamond Spring	2,354	2,354
Bowery Spring	638	692
Cooper Draw	780	853
Davis Draw-Crouse Reservoir-		
Lambson	1,052	1,052
Gadson Draw-Gerber Spring	494	494
Highway	200	220
McKee Spring	413	413
Natural Lake	275	300
Smokem-up	26	28
Bates Spring	112	123
Beaver Dam	135	147
Blair Basin	58	62
Clay Basin-Antelope Flat-		
Goslin Mountain	4,915	5,241
East Cow	104	112
Gadson	340	373
Hatch Cove	642	642
Hoy Flat	752	795
Jackson Draw-Crouse Canyon-		
Dry Hollow	1,704	1,704
Little Hole	1,361	1,432
Log Cabin	108	117
Mail Draw	170	184
Mame's Hole-Bear Hollow	203	221
Offield Mountain	580	613
Pot Creek	191	205
School Bus	293	320
Sears Canyon-Marshall Draw	1,465	1,465
Serviceberry Spring	265	288
Shiner	353	375
Warren Draw	965	965
Willow Creek	1,941	2,111
Cove	420	452
West Cow	26	28
<u>Rest Rotation</u>		
Hoy Mountain	781	848
Red Creek	1,484	1,484
<u>Deferred Rotation</u>		
Dry Creek-South Pot Creek-		
Wild Mountain	2,359	2,550
<u>Deferred Rotation and Rest Rotation</u>		
Ruple Cabin	2,941	3,216
Total	34,343	36,084

VEGETATION ANALYSIS SECTIONS (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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FORAGE PRODUCTION (continued)

Should the proposal be implemented, the objective to increase forage production by 1,860 AUMs in the planning unit would lack 119 AUMs of being met.

FORAGE CONDITION

This alternative allocates 9,731 AUMs for livestock grazing, that is 55 percent of the existing level of 17,663 AUMs (including 1,762 AUMs temporary permits).

Slight change in forage condition would be expected on the allotments where livestock grazing would remain at essentially the same level as it has the past 5 years, or in the pinyon-juniper and Douglas fir types which are believed to be in ecological climax (Dwyer, 1975).

Forage condition would be expected to improve from fair to good on the fair condition range, exclusive of the pinyon-juniper and Douglas fir vegetation types, where livestock grazing would be reduced by approximately 45 percent since grazing on desirable forage species would be reduced (Cook, 1966) and more of the desirable plants would be allowed to mature, increase in vigor and reproduce.

The following are the areas of fair forage condition range, by allotment on which it is estimated that forage condition could be improved to good by implementing the alternative:

Allotment	Acres That Would be Improved
Bates Spring	130
Beaver Dam	24
Blair Basin	15
East Cow	40
Hoy Mountain	444
Dry Creek-South Pot Creek-Wild Mountain	4,710
Ruple Cabin	2,167
Clay Basin-Antelope Flat- Goslin Mountain	10,517
Gadson	200
Hatch Cove	436
Hoy Flat	1,000
Pot Creek	577
School Bus	489
Sears Canyon-Marshall Draw	266
Serviceberry Spring	286
Warren Draw	397
Willow Creek	2,720
All other allotments	0
Total	24,418

Present and expected forage condition 15 to 20 years after implementation of the alternative (acres total) is:

<u>Condition</u>	<u>Present</u>	<u>Expected</u>
Good	55,836	80,254
Fair	126,285	101,867
Poor	8,415	8,415

VEGETATION ANALYSIS SECTION (concluded)

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaFORAGE CONDITION (continued)

The objective to improve forage condition from fair to good on 25,022 acres or half of the currently fair condition range, exclusive of those acreages in the Douglas fir and pinyon-juniper types, would lack 604 acres of being met.

TREND IN FORAGE CONDITION

No livestock grazing (all forage allocated to wildlife) would be allowed on the Rye Grass Allotment. Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs.

Actual trend studies have been initiated on 5 of the 39 allotments in the planning unit. These studies show the following:

Allotments	Trend ^a	
	Improving	Static
Clay Basin-Antelope Flat-		
Goslin Mountain	19,275	9,027
Hoy Mountain	2,039	1,511
Red Creek	4,889	3,569
Ruple Cabin	12,100	0
Taylor Flat-Watson	4,826	7,471
Total	43,129	21,578

^aNo areas are declining.

Though composition may change in favor of grass over shrubs, the change would not be greater than that allowed in the objectives. It is expected that trend would remain static on the Rye Grass Allotment (2,860 acres).

Continuation of allotment-wide grazing on 34 allotments (148,138 acres), and reduction of 45 percent of the grazing allocation to livestock would provide a significant reduction of use on key forage species during the critical periods for growth and reproduction.

Trend would begin to improve on all fair forage condition ranges, on all 34 allotments (43,572 acres).

Continuation of improved grazing management, with a reduction 45 percent of grazing allocation to livestock on four allotments (39,538 acres), would provide periodic rest for key forage species during the growing season.

Regular rest and reduced use on key forage species would favor their growth and trend would continue to improve on 19,028 acres of the following three allotments where trend studies are established.

Allotment	Acres
Hoy Mountain	2,039
Red Creek	4,889
Ruple Cabin	12,100
Total	19,028

An improving trend on 9,419 acres is expected to occur on the fair condition range, on the Dry Creek-South Pot Creek-Wild Mountain Allotment where improved grazing management would continue.

The current forage condition trend is:

Improving	Static	Declining
38,240 (20%)	152,296 (80%)	0

Should this alternative be implemented, the following trend would be expected for the next 15 to 20 years:

Improving	Static	Declining
72,019 (38%)	118,517 (62%)	0

Assessment

Under this alternative, the reduction in the level of livestock grazing to 9,731 AUMs would be a 30 percent reduction from the past 5 years of actual use. It is expected that current upward trend would continue to improve because studies established in 1967 and 1955 have shown no downward trends in vegetation condition to exist under present management. Also professional opinion from managers working in the area indicate that all areas in the unit are static or improving.

Rainfall is usually sufficient to allow plants to reach full vegetal development. The vegetal development of grass species is curtailed by design at the present time on 29,053 acres of key deer winter range and continuing spring grazing.

The three allotments involved, even though at a reduced rate, would contribute to better plant vigor and litter accumulation. Erosion condition classes in about 70 percent of the area are in poor to fair condition. The average appears to be low with 20 percent or more ground cover on 75 percent of the area and less than 20 percent on the balance. The desirable and intermediate plants contribute more than 60 percent to the vegetation type composition on 162,000 acres more than 80 percent of the unit.

With livestock being grazed at the 9,731 AUM level and wildlife at the predicted high level of 16,770 (this level is thought to be more than can be supported on crucial deer winter ranges) a balance of 7,842 available AUMs would not be used initially. By the end of 20 years, the vegetation production would be expected to increase by 5 percent. The predicted increase would reduce the level of unused forage to 9,380 AUMs.

Conclusion

It is expected that this alternative would produce an immediate and long-term improvement in vegetation conditions, about 24,000 acres would change from fair into good condition class. Calculations of increased forage production are a key to indicate vegetation production would increase by approximately 5 percent to 36,084 AUMs.

Impacts on Animal Life

Ecological interrelationships between wildlife species and the habitat would change considerably under the alternative. Both favorable and adverse impacts can be expected depending upon the individual species' basic requirements.

The most important change is the allocation of additional forage for deer, elk, and antelope. From the forage survey studies, big game numbers could not exceed the forage allocated without competing with each other for preferred forage.

ANIMAL LIFE ANALYSIS SECTION

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaDEER

Continued allotment-wide grazing on 34 allotments at a 45 percent reduced level of livestock allocation would change the vegetation composition favoring grass and forb production. This would be similarly true for one allotment with no livestock grazing and four allotments presently under improved management.

Included in the alternative is the initial allocation of an additional 1,614 AUMs for a total of 10,299 AUMs.

Objectives which relate to deer are to maintain or improve their habitat and to allocate additional AUMs. With this alternative, the objective would be met for spring ranges, however, the quality of winter range would be expected to decline.

All allotments are currently rated in fair to good condition (UDWR, 1979). Spring ranges on the planning unit would improve for deer. Bertram, et al., (1977) found a strong preference by deer for forbs and grasses during this season. Summer, fall, and winter range would be adversely impacted for deer since browse would be lost from the composition (Knowles, 1975 and Pac, 1976). This change would occur within a 20 year period. The quality would decline on crucial winter range (Bridgeport, Taylor Flat-Watson, Red Creek, Clay Basin-Antelope Flat-Goslin Mountain allotments).

Unused forage would be allocated for an initial increase of 781 deer on a 12-month basis and a long-term increase of 1,080 deer on a 12-month basis. This increase of animals though somewhat dependent upon management policies of UDWR can probably not be reached because crucial deer winter range cannot support those increased numbers of deer.

ELK

Allotment-wide grazing is proposed to continue on 32 allotments. Impacts would be caused by changes in vegetation composition from browse to grass. This would also occur on the remaining seven allotments. Six of these allotments are proposed for continue improved management while one would remain with no livestock grazing. Elk inhabit 19 of these allotments.

Also proposed is to initially allocate an additional 2,204 AUMs and allocate an additional 3,457 AUMs, long term, to elk makes a total allocation of 6,091.

Elk objectives are to maintain or improve habitat and to allocate additional AUMs. Overall, these objectives would be met.

Elk ranges are presently rated in fair to good condition (UDWR, 1979). Elk summer and winter ranges would improve in quality due to a change from browse to grass. Boyd, (1970) found a strong preference by elk for grass dominated ranges during all seasons. These changes would occur within 15 to 20 years.

Potential forage would be allocated for an initial increase of 542 elk on a 12-month basis. This increase of animals is dependent upon management policies of UDWR.

ANTELOPE

Continue improved grazing management is proposed on three allotments and spring grazing on one allotment, with a 45 percent reduction in livestock allocation, within inventoried antelope range. Impacts would be caused by changes in vegetative composition from browse to grass.

Overall habitat qualities (presently good condition, UDWR, 1979) on both summer and winter ranges are expected to decrease on 42,292 acres as grass increases. Yoakum (1967) shows in his bibliography of literature on antelope that browse and forbs are primary constituents of the dietary intake of antelope. Grasses, which are predicted to increase, make up only a minor dietary percentage, however, 380 AUMs of forage would still be available for antelope. These vegetation changes would develop within 15 to 20 years.

ANIMAL LIFE ANALYSIS SECTION (continued)

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
<u>ANTELOPE</u> (continued)	
Also proposed is an additional 25 AUMs, year-long for antelope.	Potential forage would be allocated for an initial and long-term increase of 20 antelope (25 AUMs) on a 12-month basis. This increase of animals is dependant upon management policies of UDWR.

Antelope objectives of maintaining or improving habitat would be met. Objectives of allocating 380 AUMs of forage would be met.

UPLAND GAME

For this alternative, the vegetation composition in all 39 allotments in the planning unit would change from browse to grass under prescribed livestock management with a 45-percent reduction.

No planning objective for upland game.

Habitat conditions are rated fair to good for sage grouse, fair to good for cottontail rabbits and fair for mourning doves (UDWR, 1979). Allotments changing from browse to grass would decrease habitat for sage grouse, but would favor cottontail habitat. It should be pointed out, however, that even though sagebrush would decrease, adequate sagebrush is expected to remain in the composition to keep the habitat comparable to present conditions.

THREATENED OR ENDANGERED SPECIES
(BALD EAGLE)

There are no components of the alternative which relate directly to the bald eagle.

Four (4) allotments (Bridgeport, Taylor Flat-Watson, Red Creek Flat and Little Hole)--20,595 acres, support 12-18 wintering bald eagles (Wagner, 1977). Impacts from allotment-wide grazing and improved management are expected to be minimal since eagles rely heavily on fish and waterfowl as a source of food (Spinar, 1976).

FISH

Under a continue improved grazing management on four allotments, increased streambank cover could be expected on Jackson and Willow Creeks. This cover would be further improved by fencing riparian habitat on 3.5 miles in the planning unit. The remaining allotments in the planning unit (35) would also slowly convert to grass under the alternative of a 50 percent livestock reduction. An objective provides for improvement of riparian habitat and streambank cover.

The section of Green River associated with continued allotment-wide grazing would continue in a stable condition. That section associated with improved grazing management is presently rated in good condition and this habitat would continue to improve. Red Creek would continue to be the principal cause of deteriorating habitat (USGS, 1971-1976). Fencing the riparian habitat on 3.5 miles in the planning unit would improve streambank cover. Trout would benefit from cooler water temperatures and increased escape cover (Armour, 1978). Improved conditions would also result on Willow Creek under improved grazing management. Improvements on Jackson and Willow Creeks would occur within 15 to 20 years.

With improved grazing management and a 50 percent reduction of livestock, increases can be expected in grasses and associated ground cover adjacent to shorelines on Crouse and Calder reservoirs.

ANIMAL LIFE ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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WATERFOWL

Under continued improved management, riparian vegetation would improve in Sears Canyon-Marshall Draw Allotment. Other allotments under improved management and continue allotment-wide grazing which have riparian habitat are also expected to improve with increased grass production and a 45 percent reduction in livestock use.

Waterfowl habitat condition is rated poor to fair on 10 allotments (74,927 acres) (UDWR, 1978). Increasing ground cover and overhead canopy would improve riparian areas throughout the planning unit. This would be particularly true where these areas are fenced and exclude all livestock use. This change would occur within 15 to 20 years.

NON-GAME MAMMALS

Under this alternative, all 39 allotments in the planning unit would change from browse to grass under prescribed livestock management with a 45 percent reduction.

The specific impacts to the 43 species of non-game mammals in the unit are not identifiable. However, a steady conversion to grass would be adverse to some species and beneficial to others. This would depend upon life cycle requirements of the individual species (Sparks, 1974).

NON-GAME BIRDS

Under this alternative, all 39 allotments in the planning unit would change from browse to grass under prescribed livestock management with a 45 percent reduction.

Impacts are not identifiable for the 141 species of non-game birds in the unit. Vegetation changes would be beneficial to some birds and adversely affect others.

REPTILES AND AMPHIBIANS

Under this alternative, all 39 allotments in the planning unit would change from browse to grass under prescribed livestock management with a 45 percent reduction. The conversion would cause changes in the primary and secondary food chain users, resulting in a change in the prey base.

No quantifiable impacts can be determined for the 6 species of amphibians and 14 species of reptiles which exist on the planning unit. The protection of riparian zones would benefit amphibians (Hufford, 1977).

INVERTEBRATES

Under this alternative, all allotments in the planning unit would change from browse to grass under prescribed livestock management with a 45 percent reduction.

Even though invertebrates provide a prey base for a variety of other animal species, no data is available on species occurrence or habitat requirements of invertebrates; however, Morris (1967) found that selected insects were consistently adversely affected by any degree of grazing pressure. Morris also found a correlation between the diversity of insects and the diversity of vegetation composition. The correlation indicates that any increased grazing pressure would adversely affect invertebrates, but intensive grazing management with a 50 percent reduction in livestock would reduce the impact.

Assessment

With a reduction (45 percent) in livestock grazing, all species of wildlife would be provided additional forage. Deer numbers, could increase by 38 percent in the summer and 21 percent in the winter to 2,828 summer deer and 6,354 winter deer unless grazing capacity on crucial deer winter range is unable to support that increase.

Elk numbers could increase by 542 to 1,015 (115 percent) during winter and by 345 to 690 (100 percent) in the summer. With number increases like these on public land, private lands would also see increased elk use. Antelope would increase by 20 to about 300 animals year-long. It is though that space limits their increase at the present time.

Other land owners would be involved in supporting herd increase and the Utah, Colorado, and Wyoming wildlife managing agencies would continue to be responsible for game animal management.

Conclusion

It appears that even though forage would usually be produced for the increased numbers shown above, other factors might limit the individual species from achieving those numbers.

Impact to Cultural Resources

This section deals with the effect of this alternative on cultural resources. Ground-disturbing actions resulting from the construction and use of range developments could adversely affect cultural resources. However, any adverse impact to significant sites would be mitigated in accordance with the National Historic Preservation Act of 1966 as described in Chapter 1 and the cooperative agreement with the State Historic Preservation Officer (Chapter 9).

CULTURAL RESOURCES ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Range developments involving ground-disturbing actions (7 acres) from the construction of fences would occur on two allotments.	One site has been recorded in one of the allotments scheduled for range developments. Limited cultural resource work has been done in the remaining 1 allotment scheduled for range developments, but additional sites are assumed to exist in the area. Ground disturbance associated with range developments could damage or destroy cultural resources, but mitigation included in the proposal would prevent adverse impacts to significant sites. Regardless of mitigation, adverse impacts may occur in isolated cases. This could occur on 7 acres.

Conclusion

No significant impact to cultural resources would occur.

Impact to Recreation Resources

The source of impacts on recreation would be 3.5 miles of fence along Jackson Creek and Sears Creek and any change in allocation that would alter numbers of wildlife available for hunting and fishing. The analysis assumes that with present wildlife numbers, the planning unit provides a certain amount of success, satisfaction, and hunter-fisherman days. With any increase or decrease in wildlife numbers, the planning unit would provide for a direct increase or decrease in hunter success, satisfaction or hunter-fisherman days. It is not assumed, however, that numbers of hunters and fishermen would actually increase or decrease.

RECREATION ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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INVENTORIED RECREATION SITES

The alternative includes 3.5 miles of fence.

The planning unit contains 31 inventoried recreation sites for picnicking and camping, located within 21 allotments. Allotments where fencing is proposed (Little Hole and Sears Canyon-Marshall Draw) contain six inventoried recreation sites. No impact is anticipated.

OFF-ROAD VEHICLES ACCESS

The alternative includes 3.5 miles of fence.

Four-wheel driving, usually associated with hunting, occurs on unmaintained trails throughout the planning unit. No impact is anticipated.

FISHING

This alternative would improve fisheries habitat in Jackson Creek and Willow Creek. Habitat in all fisheries could be improved over the long-term.

Trout fishing occurs in the Green River, Willow Creek, Jackson Creek, Crouse Reservoir, and Calder Pond. No change in fisherman success, satisfaction or days is anticipated.

HUNTING

This alternative would allocate 2,229 additional AUMs for deer initially and over the long-term, providing for an increase in 1,080 deer initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting deer. Based on the present hunter success ratio, the potential increase in deer numbers would provide an additional 4,127 deer hunter days over the short-term and the long-term.

This alternative would allocate 3,458 additional AUMs for elk initially and over the long-term, providing for an increase in 542 elk initially and over the long-term on a year-long basis.

The planning unit provides opportunities for hunting elk. Based on the present hunter success ratio, the potential increase in elk numbers would provide for an additional 1,643 elk hunter days over the short-term, and for an additional 2,577 elk hunter days over the long-term.

This alternative would allocate 25 additional AUMs for antelope, resulting in a possible increase of 20 antelope on a 12-month basis. It would decrease sage grouse and cottontail and increase mourning dove habitat.

The planning unit provides opportunities for hunting antelope, sage grouse, cottontail, mourning dove, and waterfowl. Little effect is anticipated on hunter success, satisfaction and days.

Conclusion

Because of standard design features (Chapter 1), no impacts to recreation would occur.

Impacts to Livestock Grazing

The only major impact identified from this alternative is that a 45 percent decrease in forage allocations for livestock would cause large reductions in livestock numbers on the planning unit.

LIVESTOCK GRAZING ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Enforcing a 45 percent reduction in the proposed initial level of livestock use on 34 allotments presently under allotment-wide grazing and one allotment presently receiving no grazing would result in a forage allocation of 6,561 AUMs of grazing preference and 500 AUMs temporary non-renewable permit.	Decreased forage allocated to livestock would result in a decrease of about 1,167 cattle and 4,276 sheep on 34 allotments (148,138). This decrease would be taken from a base of 4,346 cattle and 17,078 sheep presently using the 34 allotments.
Enforcing a 45 percent reduction in the proposed initial level of livestock use on four allotments presently under improved management would result in a forage allocation of 2,334 AUMs of grazing preference and 336 AUMs of temporary non-renewable permit.	Decreased forage allocated to livestock would result in a decrease of about 597 cattle on Hoy Mountain, Red Creek, Dry Creek-South Pot Creek-Wild Mountain, and Ruple Cabin allotments (31,080 acres). This decrease would be taken from a base of 1,559 cattle presently using these allotments.
Should the alternative be implemented, the objective of increasing the livestock forage allocation by 1,860 AUMs would not be met.	

Conclusion

Only 3,179 cattle and 12,732 sheep would continue to graze on the planning unit. This would be a 27 percent reduction in cattle and a 26 percent reduction in sheep from the present situation.

Impact to Special Designation Areas

Fencing and disturbance of the riparian area would be the basis for impact to Wilderness, Wild and Scenic Rivers, and Outstanding Natural Area values.

SPECIAL DESIGNATION AREAS ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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WILDERNESS

The alternative includes 3.5 miles of fencing.

The initial step in BLM's wilderness review process has been completed within the planning unit and 11 wilderness inventory units have been identified within all or part of 25 allotments. Portions of the two allotments where fencing is proposed (Little Hole, Sears Canyon-Marshall Draw) contain wilderness inventory units. No impact is anticipated due to Chapter 1 mitigation.

WILD AND SCENIC RIVER

No developments are proposed within the Green River corridor.

This alternative would not affect the suitability of the river for designation.

OUTSTANDING NATURAL AREA

The alternative includes 1.5 miles of fencing in Sears Canyon-Marshall Draw.

Crouse Canyon, partially located in Sears Canyon-Marshall Draw, is being considered by BLM for designation as an Outstanding Natural Area. Structures and disturbance as proposed would not affect the suitability of the canyon for designation.

Conclusion

No degradation would be allowed because of standard design features.

Impact to Land Use Plans

Since state and local governments also have jurisdiction in the Three Corners Planning Unit, changes made in present grazing operations and practices are of concern to them.

LAND USE PLANS ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
None of the zoning designations applied to the area conflict with livestock grazing or range improvement programs. The policies of the Utah Division of State Lands are consistent with the proposed use of the area's resources.	The planning unit is currently covered by three county zoning ordinances.

Impacts to Economic Conditions

The livestock industry, including livestock operators affected by this alternative, would make up 3.3 percent of the total personal income in Uintah and Daggett counties. The additional income generated by implementation of this alternative on the Three Corners Planning Unit would account for 0.8 percent of the total livestock income and 0.03 percent of the total personal income in the two counties. Therefore, the influence which this alternative would have on the state and regional economics is considered insignificant and is not pursued further. The economic analysis includes a three part discussion of impacts to operators and a section on the net projected increase to the recreation sector.

ECONOMIC CONDITIONS ANALYSIS SECTION

Resource Sub-category and
Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected Area

INCOME TO SMALL OPERATOR

Change of Allocation

Under this alternative, the livestock operator would receive a 50 percent reduction in the allocation of forage from that identified in the proposed action.

Twenty-four livestock operators are permitted to use 12 allotments (13 of the 24 are permitted on Ruple Cabin under improved management). The average small operator has 81 animal units (BLM, 1979). The typical small ranch net income was \$1,150.00 in 1977.

Under this alternative, the number of small operators would increase to 25 and use 13 allotments. The average small operator would be reduced to 73 AUs and 879 AUMs.

The change expected to occur to the small ranch budget would be:

	Existing Situation	Alternative
Total Gross Income		
From Alternative:	\$8,885.00	\$9,242.00
Gross income from Allocation: \$8,007.00		
Additional gross income from management: \$1,235.00		
Total Costs From		
Alternative:	\$7,735.00	\$7,103.00
Total costs from allocation: \$6,971.00		
Additional costs of management improvement: \$132.06		
Projected Net Income under this alternative	\$1,150.00	\$2,139.00

INCOME TO MEDIUM OPERATOR

Change of Allocation

Under this alternative, the livestock operator would receive a 50 percent reduction in the allocation of forage from that identified for the proposed action.

Fourteen livestock operators are presently permitted to use 15 allotments. The average medium operator has 224 animal units. It is estimated that the average medium operator presently operates at a net loss of \$6,914.00 per year.

Under this alternative, there would be 17 operators using 15 allotments. The average medium operator would then have 288 AUs and 3,458 AUMs.

The change expected to occur in the medium ranch budget would be:

ECONOMIC CONDITIONS ANALYSIS SECTION (concluded)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

INCOME TO MEDIUM OPERATOR (continued)

	<u>Existing Situation</u>	<u>Alternative</u>
Total Gross Income		
From Alternative	\$39,006.00	\$53,940.00
Gross income from Allocation: \$50,077.00		
Additional gross income from management: \$ 3,863.00		
Total Costs From Proposal	\$45,920.00	\$59,583.00
Total costs from allocation: \$59,087.00		
Additional costs of management improvement: \$496.00		
Projected Net loss With this Alternative	\$-6,914.00	\$-5,643.00

INCOME TO LARGE OPERATORChange of Allocation

Under this alternative, the livestock operator would receive a 50 percent reduction in the allocation of forage from that identified for the proposed action.

Seven operators are permitted to use 12 allotments. The average large operator has 705 animal units (BLM, 1979). The typical large ranch net income is \$57,044.00.

Under this alternative, there would be three operators on ten allotments. The average large operator would have 897 AUs and 10,767 AUMs.

	<u>Existing Situation</u>	<u>Alternative</u>
Total Gross Income		
From Alternative	\$120,060.00	\$164,380.00
Gross income from Allocation: \$153,412.00		
Additional gross income from management: \$ 10,968.00		
Total Costs From Proposal	\$ 63,016.00	\$ 81,205.00
Total costs from allocation: \$ 80,182.00		
Additional costs of improved management: \$ 1,023.00		
Projected Net Income this Alternative	\$ 57,044.00	\$ 83,175.00

Conclusion

The present and expected net income for ranch operators are shown for each of the three ranch sizes.

	<u>Existing Situation</u>	<u>Alternative</u>
Small Operator	\$ 1,150.00	\$ 2,139.00
Medium Operator	\$-6,914.00	\$-5,643.00
Large Operator	\$57,044.00	\$83,175.00

The total net income of the grazing would be \$207,069.00.

Impact to Recreation Income

Predictions made in the Recreation section are the basis for the following analysis.

RECREATIONAL INCOME ANALYSIS SECTION

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
The alternative would allocate 2,229 additional AUMs for deer. Potential increase in deer numbers would provide an additional 4,127 deer hunter days. Also allocated are 3,458 additional AUMs for elk. Potential increase in elk numbers would provide an additional 2,577 elk hunter days.	It is estimated that 14,213 hunter days on the planning unit presently produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County Area. Based on the present estimated value of hunter days of \$49.94, the additional hunter days would provide \$334,798.00 of additional gross income to the area. This would in turn mean an additional \$223,179.00 (a 47 percent increase) of net income for the two county area.

Conclusion

Negative attitudes toward the federal government would be reinforced.

E. ELIMINATION OF LIVESTOCK GRAZING

1. Description of the Alternative

a. Purpose and Objective

This alternative examines the impacts of complete elimination of livestock grazing from public lands in the planning unit.

The major objectives would be to allow vegetation and wildlife populations to reach ecological potential without the influence of livestock grazing and to reserve all remaining forage for watershed protection and enhancement of visual resources and recreation.

b. Forage Allocation

All forage would be allocated to wildlife and for the enhancement of resources other than livestock grazing. Table 8-12 summarizes the present use of forage by livestock and big game as well as the allocation of forage to big game and other resources under this alternative. This information is given by allotment in Appendix VIII-7.

c. Components of the Alternative Action

Under this alternative, all existing grazing privileges and cooperative agreements would be cancelled. Livestock operators with investments in cooperative agreements would be entitled to appropriate project salvage rights (P.L. 94-579).

Due to the intermixing of private, state, and public lands within the planning unit, livestock operators would be required to prevent livestock trespass on public lands. Livestock trespass could be controlled by herding or the construction of up to 400 miles of new fence. These fences would cost an estimated \$3,200 per mile. In the Three Corners Planning Unit, fencing would be the responsibility of the livestock operators.

Livestock water developments would be left in place for use by wildlife. Only the district boundary fences would be maintained by the BLM. Other fences would be salvaged or cleaned up as funds become available. No further developments, or vegetation manipulation; on public land and administered by BLM; to enhance livestock forage would be allowed.

d. Monitoring and Study Programs

No monitoring or studies would be required.

e. Standard Design, Construction, and Operation Features

All fences would be built by adjacent land owners. There would be no BLM control over the design of privately owned fences on private land.

f. Development and Maintenance Costs

Elimination of livestock grazing from the public lands in the Three Corners Planning Unit would incur costs for both BLM and livestock operators.

The costs would primarily be encountered in the following areas:

TABLE 8-12

Summary of Existing Forage Use and Alternate Forage Allocation^a

Alternative Action Component and Subcomponent	Forage Production AUMs	Existing Livestock and Big Game Grazing Situation					Alternative Forage Allocation (AUMs)		
		Present Livestock Use ^b		AUMs		Est. Current Wildlife Use (AUMs)	Watershed		
				AUMs Pref. ^c	AUMs Actual		Livestock ^d	Big Game	and Other Uses ^e
No Livestock Grazing (39 allotment)	34,343	Shp.	17,078	15,901	13,952	11,058	0	16,770	17,573

^aAppendix VIII-4 contains the details of the existing forage use and proposed forage allocation; it also contains additional explanatory footnotes.

^bNo. = Number of animals, Cat. = cattle, Shp. = sheep, Pref = Preference, Actual = 5 year average use.

^cDoes not include 1,672 AUMs of temporary non-renewable use.

1. Administrative costs of license cancellation.
2. Payment of salvage rights.
3. Maintenance of existing water developments and district boundary fences.
4. Construction and maintenance of fences required to control trespass.
5. Costs of herding animals to avoid trespass.
6. Costs of Clean up and salvage of unneeded fences.

Construction of trespass control fences could require investments of up to \$1,280,000 by livestock operators. Annual maintenance of existing water developments and boundary fences would cost approximately \$10,000 for the BLM. Payable salvage rights would be computed by the BLM.

g. Implementation

It is anticipated that implementation of this alternative would be accomplished within 1 year following the filing of the final environmental statement. Two new positions in BLM's Vernal District would be required to monitor trespass and supervise this alternative.

h. Administration

The alternative would be administered and managed through standard BLM operating procedures.

2. The Environmental Impacts of the Alternative

Introduction

In order to conduct an analysis, and to make future impact projections, certain assumptions and analysis guidelines are required. These are noted as follows:

1. The alternative action would be fully implemented.
2. Preventative measures listed in Chapter 1 would be carried out as construction stipulations.
3. Proposal assumptions and projections in Chapter 1 would be applicable to this alternative.
4. The proposal would not involve BLM control over private land which are intermixed within the livestock allotments. Due to lack of specific data for these private lands, a detailed analysis would be impossible.

Climate, air quality, topography, and geology are not discussed because no major impacts would occur to these resources. Other resource components are introduced and analysis procedures and assumptions given for each resource component.

Impact on Soils

Elimination of livestock grazing and related improvements were analyzed to determine the extent to which they would affect the soil resource. Included are sediment yield, erosion condition, and soil salinity. Seeding suitability is not discussed as no seeding is planned in this alternative.

Anticipated changes in vegetation ground cover, composition, and intensity of use are factors influencing impacts to soils.

Because the planning unit currently has few erosion and other soil problems (Chapter 2 and Appendix II-2), it is expected that the impacts to the soil resource would be minor.

The analysis indicates that adverse impacts would occur only on localized areas, sediment yield would be reduced and soil compaction by livestock would be eliminated.

Due to the magnitude of impacts expected, it is difficult to predict measurable changes in existing rates of sediment yield, erosion conditions, or water salinity contribution for the soils of the planning unit. Some predictions have been made, however, as to whether the rates would increase or decrease from the existing condition by considering specific impacts as they would affect the factors that influence erosion. The results of the analysis of these specific impacts are described as follows:

SOILS

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
<u>SEDIMENT YIELD</u>	
Livestock grazing would be eliminated on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase to at least 25 percent on all allotments except Bridgeport where cover would also increase but not to the 25 percent level. This would improve watershed conditions.	Sediment yield currently ranges between 0.1 and 1.0 acre-feet per square mile per year. Vegetation ground cover would increase. Sediment yield could decrease by as much as 14.7 acre-feet annually from 0.20 to 0.15 acre-feet per square mile per year (PSIAC, 1968; Branson, 1972). All allotments would be affected and changes would occur over the next 15 to 20 years.
<u>EROSION CONDITION</u>	
Vegetation ground cover would increase on all allotments but Bridgeport, as all livestock grazing ceases on public lands.	Although current erosion condition is slight, the erosion condition would improve as more ground cover accumulates on soil.
<u>SOIL SALINITY</u>	
Livestock grazing would be discontinued on Clay Basin-Antelope Flat-Goslin Mountain Allotment. The proposal would increase grass and decrease brush composition and the vegetation cover would increase. This would improve watershed conditions.	Soils on 15,520 acres within this allotment are slightly saline. The expected increase of grass composition and the increase in vegetation ground cover would decrease salt laden sediment yield within 20 years. The exact amount is not known.

Impact on Water Resources

The analysis of the impacts caused by the elimination of livestock and related fences focuses on (1) water quantity and (2) water quality.

Water is an important resource in its relationship to wildlife use, soil erosion and transport, aquatic habitats and riparian vegetation growth. The environmental impact analysis indicates that the water consumed by livestock in the planning unit, would be reduced but, in comparison to the total annual yield, the reduction would be very minor.

Chemical constituents of the surface waters are not likely to be changed by the proposal since the chemical composition is dependant to a large extent on source of water and the geological substrata. Changes in erosion would not be great enough to produce a noticeable change in the chemical composition of the water. Most coliform contamination from livestock comes from use in or directly adjacent to the stream. The portion of this problem caused by livestock on public lands would be eliminated.

WATER RESOURCES

Relationship to the Alternative

Existing Environment, Probable Impacts, and Affected Area

WATER QUANTITY

Livestock grazing would be eliminated on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase and sediment yield to decrease. This would improve watershed conditions.

Current annual water yield from public land in the planning unit is approximately 130,460 acre-feet. Because the total vegetation cover is expected to increase, water yield would decrease over the next 15 to 20 years (Branson, 1972). The exact amount is not known, but it is expected to be slight. All 38 allotments would be affected.

WATER QUALITY

Livestock grazing would be discontinued on 38 allotments that comprise 187,676 acres of public land. Vegetation ground cover is expected to increase and sediment yield to decrease. This would improve watershed conditions.

The sediment load of these streams would be reduced gradually over a period of 15 to 20 years. The exact amount of reduction is not known (PSIAC, 1968; Branson, 1972).

Fecal coliform contamination which is high when livestock are grazing near a stream would be reduced substantially. The exact amount is not known, but it would take place immediately upon the removal of livestock. Because riparian vegetation is expected to increase along all streams, the level of orthophosphate would increase as a result of increased amount of decaying vegetation (EPA, 1976). The exact amount of this increase is not known, but levels are currently high and at times exceed state standards. This change would take place slowly over 15 to 20 years.

Impacts on Vegetation

This section analyzes the anticipated impacts which the alternative would have on vegetation and forage in the planning unit. Impacts on vegetation and forage are interrelated with animal life, watershed, visual resources, and land use (livestock grazing), and could be the cause of impacts on these resources.

Summary of impacts identified in this section:

Twenty-three acres of riparian vegetation now rated to be in fair condition should improve to good condition.

Big sagebrush would decline to less than desired levels (less than 20 percent composition) on four allotments.

Grass is expected to increase and big sagebrush decrease on nearly all of the 190,536 acres in the planning unit. It is anticipated that this change would take 15 to 20 years.

Vegetation ground cover would not increase to above desirable levels (greater than 25 percent) on Bridgeport Allotment.

The affects this alterntive would have upon threatened and endangered species is unknown. For the most part their responses to specific changes cannot be predicted because their habitat requirements are unknown.

Forage production would be expected to increase by 2,585 AUMs over a period of 20 years.

Forage condition would be expected to improve from fair to good on 55,148 acres.

Should this alternative be implemented, the following trend would be expected for the next 15 to 20 years: improving, 66,913 acres; static, 123,623 acres; declining, 0 acres.

VEGETATION

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected Area

TYPES AND SUBTYPES
(including Riparian Vegetation and Condition)

This alternative is to eliminate livestock grazing on all allotments. This would be accomplished by construction of approximately 400 miles of fence.

The following vegetation types are present in the planning unit:

Type	Acres
Agebrush	80,816
Pinyon-juniper	80,795
Conifer	14,565
Grass	5,324
Mountain shrub	5,378
Broadleaf trees	1,908
Greasewood	999
Riparian	751
Total	190,536

There would be no changes in types or subtypes.

The 23 acres of riparian vegetation in fair condition would be fenced to exclude livestock.

The 23 acres of fair condition riparian vegetation would be improved to good since it would be fenced to exclude livestock (Winegar, 1977).

Objectives identified for riparian vegetation to maintain the good condition and improve the fair to good would be met.

COMPOSITION AND VEGETATION GROUND COVER

No livestock grazing on all 39 allotments would be allowed. Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs.

Grass would continue to increase and shrubs decrease on all 190,536 acres of public land in the planning unit (Heady, 1975). Through elk make heavier use of grass than deer, it is not expected that an increase of elk use during winter and summer would stop increase in grasses. The exact percent composition change is unknown. It is expected that all vegetation ground cover objectives would be met except on the Bridgeport Allotment. On the Bridgeport Allotment, grass cover is presently so low in the composition that vegetation ground cover would not increase to 25 percent within 20 years regardless of management. Due to forage preference of both deer and elk, it is expected that objectives for vegetation composition would be met except on the following allotments where wintering deer use is heavy and browse would decrease in the composition below the desired 20 percent level:

Allotment	Acreage
Bridgeport	8,298
Clay Basin-Antelope Flat-	
Gosline Mountain	28,302
Red Creek	8,458
Taylor Flat-Watson	12,297
Total	57,355

Desirable levels of vegetation ground cover and composition are currently being met on two allotments (11,190 acres--6 percent of public land in the planning unit).

Should the proposal be implemented, objectives for vegetation ground cover and composition would be met on 35 allotments (133,181 acres--70 percent of public land in the planning unit).

VEGETATION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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KEY SPECIES

This alternative is to eliminate livestock grazing from all allotments.

Eleven key species from three families (Poaceae, Asteraceae, and Rosaceae) have been identified for the Three Corners Planning Unit. Seven key species are grasses: bluebunch wheatgrass, Columbia needlegrass, crested wheatgrass, Indian ricegrass, Letterman needlegrass, needle-and-thread grass, and western wheatgrass. Four key species are shrubs: antelope bitterbrush, big sagebrush, black sagebrush, and true mountain mahogany.

Probable response of key species to this alternative would result in an increase in key grasses, and key shrubs would likely remain static on all allotments except those located on important big game winter ranges (Rye Grass, Bridgeport, Taylor Flat-Watson, Red Creek, and Clay Basin-Antelope Flat-Goslin--57,355 acres) where browse would decline and grasses increase, due to elimination of livestock grazing (Laycock, 1967; Trlica, et al., 1977; Cook, 1966).

THREATENED AND ENDANGERED SPECIES

Threatened and endangered species welfare is provided for by protective measures which are a required standard of this proposal. There would be no livestock grazing or range developments for this alternative.

The following threatened or endangered species have been identified in the planning unit. Penstemon acaulis (Scrophulariaceae), a candidate threatened species, and Parthenium ligulatum (Asteraceae) and Oxytropis obnapiformis (Fabaceae), proposed endangered species were collected near the mouth of Jessie Ewing Canyon in the Bridgeport Allotment in 1978. Arabis demissa variety languida (Brassicaceae), a candidate threatened species, was collected on the Antelope Flat-Goslin Mountain-Clay Basin Allotment in 1978. Cryptantha stricta (Boraginaceae), a candidate threatened species, is believed to be widespread in the Three Corners Planning Unit. However, it has been recommended by the BLM Vernal District Botanist that this species be removed from the candidate threatened species list. No available record verifies the occurrence of any other proposed, candidate or officially listed threatened or endangered plant species within the Three Corners Planning Unit (Neese, 1978 and England, 1979).

No livestock grazing nor developments are proposed for this alternative, therefore, there would be no impacts from range developments. Eliminating livestock grazing may inhibit growth of some threatened and endangered species since some plants may or may not thrive under livestock grazing or areas of disturbance. As habitat requirements and response to grazing for threatened and endangered plants in this planning unit is unknown, it is not possible to predict the significance of the impacts.

FORAGE PRODUCTION

This alternative eliminates livestock grazing on all public land allotments.

Forage production would be expected to increase by at least 10 percent of inventoried production in all allotments except Rye Grass (Laycock, 1967; Cook, 1977; Trlica, et al., 1977; Mueggler, 1975). Forage production would not increase on Rye Grass Allotment since livestock grazing was eliminated from there in 1963 and it is believed the vegetation is approaching ecological climax.

VEGETATION (continued)

Relationship to the Alternative

Existing Environment,
Probable Impacts, and Affected AreaFORAGE PRODUCTION (continued)

The following shows the expected forage production by allotment within 20 years after implementing the alternative:

Proposed Action Sub-Component and Allotment	Present	Expected (20 years)
<u>No Livestock Grazing</u>		
Rye Grass	508	508
Bridgeport	794	833
Taylor Flat-Watson	2,141	2,264
Bowery Spring	638	692
Gadson Draw-Gerber Spring	494	535
Highway	200	220
McKee Spring	413	454
Natural Lake	275	300
Smokem-up	26	28
Bates Spring	112	123
Beaver Dam	135	147
Blair Basin	58	62
East Cow	104	112
Log Cabin	108	117
Mail Draw	170	184
Mame's Hole-Bear Hollow	203	221
Cove	420	452
West Cow	26	28
Hoy Mountain	781	848
Red Creek	1,484	1,588
Dry Creek-South Pot Creek-		
Wild Mountain	2,359	2,550
Ruple Cabin	2,941	3,216
Clay Basin-Antelope Flat-		
Goslin Mountain	4,915	5,241
Gadson	340	373
Hatch Cove	642	695
Hoy Flat	752	794
Jackson Draw-Crouse Canyon-		
Dry Hollow	1,704	1,823
Little Hole	1,361	1,432
Offield Mountain	580	613
Pot Creek	191	205
School Bus	293	320
Sears Canyon-Marshall Draw	1,465	1,566
Serviceberry Spring	265	288
Shiner	353	375
Warren Draw	965	1,043
Willow Creek	1,941	2,111
Bealer Basin-Diamond Gulch-		
Diamond Spring	2,354	2,574
Cooper Draw	780	853
Davis Draw-Crouse Reservoir-		
Lambson	1,052	1,140
Total	34,343	36,928

Should this alternative be implemented, the objective to increase forage production by 1,860 AUMs in the planning unit would be exceeded by 725 AUMs.

VEGETATION (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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CONDITION

This alternative discontinues all livestock grazing from public lands.

Forage condition would be expected to improve from fair to good on all the fair condition range in all allotments except Rye Grass (exclusive of the pinyon-juniper and Douglas fir vegetation types). Since livestock grazing would be eliminated, it would allow greater growth on desirable forage species (Laycock, 1967; Trlica, et al., 1977; Cook, 1971).

Those acreages in the pinyon-juniper and Douglas fir vegetation types in fair and poor forage condition, which are believed to be in ecological climax, would not be expected to improve in condition (Dwyer, 1975).

The following are the areas of fair forage condition range, by allotment on which it is estimated that forage condition could be improved to good by implementing the alternative:

Allotment	Acres That Would be Improved
Brigeport	4,193
Taylor Flat-Watson	0
Bowery Spring	0
Gadson Draw-Gerber Spring	0
Highway	290
McKee Spring	120
Natural Lake	5
Smokem-up	80
Bates Spring	260
Beaver Dam	47
Blair Basin	30
East Cow	80
Log Cabin	0
Mail Draw	0
Mames Hole-Bear Hollow	0
Cove	0
West Cow	0
Red Creek	0
Hoy Mountain	889
Dry Creek-South Pot Creek-Wild Mountain	9,419
Ruple Cabin	4,335
Clay Basin-Antelope Flat- Goslin Mountain	21,034
Gadson	400
Hatch Cove	871
Hoy Flat	1,999
Jackson Draw-Crouse Canyon- Dry Hollow	0
Little Hole	0
Offield Mountain	0
Pot Creek	1,154
School Bus	978
Sears Canyon-Marshall Draw	533
Serviceberry Spring	571
Shiner	0

VEGETATION (continued)

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

CONDITION (continued)

Allotment	Acres That Would be Improved
Warren Draw	794
Willow Creek	5,439
Bealer Basin-Diamond Gulch- Diamond Spring	541
Cooper Draw	1,086
Davis Draw-Crouse Reservoir- Lambson	0
Total	55,148

Present and expected forage condition 15 to 20 years after implementation of the alternative (acres total) is:

Condition	Present	Expected
Good	55,836	110,984
Fair	126,285	71,137
Poor	8,415	8,415

The objective to improve forage condition from fair to good on 25,022 acres or half of the currently fair condition range, exclusive of those acreages in the Douglas fir and pinyon-juniper types would be exceeded by 30,126 acres.

TREND IN FORAGE CONDITION

No livestock grazing on all 39 allotments (all forage allocated to wildlife) would be allowed. Current use by wildlife, and their forage preference, would favor the growth of grass over shrubs.

Actual trend studies have been initiated on 5 of the 39 allotments in the planning unit. These studies show the following:

Allotments	Trend ^a	
	Improving	Static
Clay Basin-Antelope Flat- Goslin Mountain	19,275	9,027
Hoy Mountain	2,039	1,511
Red Creek	4,889	3,569
Ruple Cabin	12,100	0
Taylor Flat-Watson	4,826	7,471
Total	43,129	21,578

^aNo areas are declining.

Grass would continue to increase and shrubs decrease on all 190,536 acres of public land in the planning unit. Though elk make heavier use of grass than deer, it is not expected that an increase of 49 elk AUMs use during winter and summer would stop increase in grasses.

It is expected that trend would continue to improve on the 43,129 acres on the five allotments where trend studies have been established. Trend is also expected to improve on 23,784 acres of fair condition range, exclusive of Douglas fir and pinyon-juniper on the remaining 34 allotments.

VEGETATION (concluded)

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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TREND IN FORAGE CONDITION (continued)

The current forage condition trend is:

<u>Improving</u>	<u>Static</u>	<u>Declining</u>
38,240 (20%)	152,296 (80%)	0

Should the alternative be implemented, the following trend would be expected for the next 15 to 20 years.

<u>Improving</u>	<u>Static</u>	<u>Declining</u>
66,913 (35%)	123,623 (65%)	0

Impact on Animal Life

This alternative would provide changes in vegetation composition favoring grass production. Favorable impacts would result for such species as elk while the loss of browse would be detrimental to deer and antelope.

The most important change is the allocation of additional forage for deer, elk, and antelope.

ANIMAL LIFE

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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DEER

Elimination of livestock grazing from the planning unit would favor vegetation conversion to grass in excess of 25 percent of the composition on all allotments except Bridgeport (8,298 acres). Big sagebrush would decrease below 20 percent on Bridgeport, Taylor Flat-Watson (12,297 acres) Clay Basin-Antelope Flat-Goslin Mountain (28,302 acres), and Red Creek (8,458 acres).

Also proposed is to initially allocate an additional 1,611 AUMs and allocate an additional 2,226 AUMs, long-term to deer.

Objectives relate to deer are designed to maintain or improve the habitat. Under this alternative action, the objective would be met for spring range but the quality of winter range would decline.

Mule deer spring range would increase in quality on the planning unit due to a change from browse to grass. Bertram, et al., (1977) found a strong preference by deer for both forbs and grasses during this season. This same action would decrease the quality during summer, fall, and winter ranges. On crucial winter areas on four allotments, the quality of deer winter range would decline.

Potential forage would be allocated for an increase of 1,080 deer on a 12-month basis. The probability of realizing this increase of animals is dependent upon management considerations and recommendations by UDWR.

ELK

Elimination of livestock grazing on the public land on the planning unit would change the vegetation composition favoring grass production on all allotments except Bridgeport (8,298 acres).

Also proposed is to initially allocate an 2,204 AUMs and allocate an additional 3,457 AUMs, long term.

Objectives for elk are to maintain or improve habitat. This would occur under the alternative.

Elk summer and winter ranges would improve in quality with predicted grass increase in excess of 25 percent. Boyd, (1970) found that elk show a strong preference for grass dominated ranges under all seasons.

Potential forage would be allocated for an initial increase of 345 elk on a 12-month basis and a long-term increase of 542 elk on a 12-month basis. These increased population levels are dependent upon management decisions and recommendations by UDWR.

ANTELOPE

Under the alternative to eliminate livestock grazing from the planning unit, grass would increase in excess of 25 percent on all allotments except Bridgeport (8,298 acres). It is expected that big sagebrush would decrease below 20 percent on four allotments (Bridgeport), Taylor Flat-Watson (12,297 acres), Clay Basin-Antelope Flat-Goslin Mountain (28,302 acres), and Red Creek (8,458 acres).

Additional forage (29 AUMs) is proposed for allocation to antelope on a year-long basis.

Maintaining or improving antelope habitat would be met under the alternative.

Habitat qualities on both summer and winter ranges would decrease. Yoakum (1967) shows in his bibliography of literature on antelope that browse and forbs are primary food source for antelope, while grass makes up only a minor dietary percentage.

Potential forage would be allocated which would provide forage for an additional 20 antelope on a 12-month basis. The probability of realizing this increase would depend upon management policies and recommendations by UDWR.

ANIMAL LIFE (continued)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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UPLAND GAME

Under the no livestock grazing alternative, a vegetation change would occur favoring grass production with a reduction of browse.

Habitat conditions are rated fair to good for sage grouse, fair to good for cottontail rabbits, and fair for mourning doves (UDWR, 1979). Increased grasses on those allotments supporting sage grouse would generally have an adverse impact. This is particularly true if sagebrush falls below 10 percent of the composition (Wallsted, 1975). Cottontail habitat presently rated fair would improve to good and those areas presently in good condition would remain at this level. Mourning dove habitat would improve through grass seed production (Sanderson, 1977).

THREATENED OR ENDANGERED SPECIES
(BALD EAGLE)

There are no components of the alternative which relate directly to the bald eagle.

Minimal impacts to wintering bald eagles are expected since the prey base is presently stable (UDWR, 1979) and this condition is expected to remain. In addition, these birds rely heavily on fish and waterfowl for a primary food supply (Spinner, 1976) and the proposal for no livestock grazing would have no impact on this prey base.

FISH

It is proposed to eliminate livestock use on 39 allotments. This change would favor grass and forb production over browse which should result in increased vegetation ground cover. This would meet the objective for maintaining and improving the riparian habitat in the planning unit that is associated with fish.

Following are condition ratings for stream fisheries.

Poor	--	11.1 miles
Fair	--	6.8 miles
Good	--	10.9 miles
Reservoirs (2) unknown.		

Increased grasses would improve streambank cover and provide for improvement in the condition rating (Armour, 1978). This would develop within the 5 to 20 year time frame.

WATERFOWL

Under no grazing, riparian vegetation would improve in Sear's Canyon-Marshall Draw Allotment.

Riparian areas on the remaining allotments would remain in a static condition.

Habitat condition is rated poor to fair on 10 allotments (74,927 acres) having waterfowl habitat (UDWR, 1978). Increasing ground cover and overhead canopy would improve riparian areas to good condition on all allotments.

NON-GAME MAMMALS

The proposal to eliminate livestock grazing over the planning unit would favor a vegetation conversion to grass.

Specific impacts to the 43 species of non-game mammals in the unit (190,536 acres) are not identifiable. Both beneficial and adverse impacts would result since habitat changes would result.

NON-GAME BIRDS

The proposal to remove all livestock grazing would result in a vegetation conversion which would favor grass.

Impacts are not identifiable for the 141 species of non-game birds in the unit (190,536 acres). Vegetation changes would be beneficial to some birds and adversely affect others.

ANIMAL LIFE (concluded)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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REPTILES AND AMPHIBIANS

The proposal to restrict all livestock grazing would cause vegetation type conversion favoring grasses which would in turn cause changes in the primary and secondary food chain users which would cause a change in the prey base.

No quantifiable impacts can be determined for the 6 species of amphibians and 14 species of reptiles which exist on the planning unit, except that the improvement of riparian zones would benefit amphibians (Hufford, 1977).

INVERTEBRATES

Vegetation changes from browse to grass and forbs would occur, resulting from no grazing on 37 allotments. Big sagebrush would continue to decrease below 20 percent on the remaining five allotments resulting from heavy deer winter use.

No data is available on species occurrence or habitat requirements of invertebrates, however, Morris, (1967) found that selected insects were consistently adversely affected by any degree of grazing pressure (all allotments). Morris also found a direct correlation in the diversity of insects relating to the diversity of vegetative composition. This would indicate that a favorable impact would result on all allotments except those receiving heavy deer winter use. These should remain static for invertebrates.

Impact on Cultural Resources

This section deals with the effect of this alternative on cultural resources. Ground-disturbing actions resulting from the construction and use of range developments could adversely affect cultural resources. However, any adverse impact to significant sites on federal and state land would be mitigated in accordance with the National Historic Preservation Act of 1966.

CULTURAL RESOURCES

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
The range developments involve ground-disturbing actions resulting from construction of 400 miles of fences. Approximately 98 miles of fence would be built along public land-state land boundaries.	Limited cultural resource inventory has been done in the planning unit, but sites are known to exist there. Ground disturbance associated with fence construction could damage or destroy cultural resources, but preventive measures included in Chapter 1, would prevent adverse impacts to significant sites. Regardless of these measures adverse impacts may occur in isolated cases. This could occur on 196 acres.
Approximately 302 miles of fence would be built along public land-private land boundaries	Preventive measures would not apply to private land and adverse impacts to cultural resource could occur on as much as 604 acres of private land.

Impact on Paleontology

This section deals with the effect of this alternative on paleontological resources. Ground-disturbing actions resulting from the construction of fences could adversely affect paleontological resources. However, preventive measures included in Chapter 1 would prevent most adverse impacts on federal and state land.

PALEONTOLOGICAL RESOURCES

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
The construction of up to 400 miles of fence is proposed in this alternative. Approximately 98 miles of fence would be built along public land-state land boundaries.	Three fossil-bearing formations are exposed in the planning unit (Morrison, Fort Union, Hilliard Shale). Ground disturbance resulting from fence construction could damage or destroy paleontological resources, but preventive measures included in Chapter 1 would prevent most adverse impacts. Regardless of these measures, adverse impacts may inadvertently occur in isolated cases on 196 acres of federal land.
Approximately 302 miles of fence would be built along public land-private land boundaries.	Preventive measures would not apply to private land and adverse impacts could occur on as much as 604 acres of private land.

Impact on Visual Resources

Fences and construction disturbances from the alternative are the basis of visual resources impact.

VISUAL RESOURCES

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
Up to 400 miles of new fence may be constructed.	Visual Resource Management (VRM) Class II, III, IV, and V areas have been identified in the planning unit. The management objective for each VRM class allows a different degree of visual modification in the landscape. Evidence of livestock management is common in the form of fencelines, water developments and chained areas. Fencing would occur in Class II, III, IV, and V areas. Because there would be no BLM control over the design or construction of privately owned fences, the visual modification may not always be compatible with all VRM class areas.

Impacts on Recreation Resources

The basis of impact on recreation would include structures and disturbance from proposed range developments, structures that could impede recreational access, and any change in management or allocation that would alter numbers of wildlife available for hunting and fishing. The analysis assumes that with present wildlife numbers, the planning unit provides a certain amount of success, satisfaction, and hunter-fisherman days. With any increase or decrease in wildlife numbers, the planning unit would provide for a direct increase or decrease in hunter success, satisfaction or hunter-fisherman days. It is not assumed, however, that numbers of hunters and fishermen would actually increase or decrease.

RECREATION

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
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INVENTORIED RECREATION SITES

Up to 400 miles of new fence may be constructed.	The planning unit contains 31 inventoried recreation sites for picnicking and camping, located within 21 allotments. Fences would be constructed adjacent to sites, and in some cases recreational values may be reduced.
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OFF-ROAD VEHICLE ACCESS

Up to 400 miles of new fence may be constructed.	Four-wheel driving, usually associated with hunting, occurs on unmaintained trails throughout the planning unit. Unmaintained trails would be fenced throughout the planning unit. Cattleguards would not be required across maintained roads. Access throughout the planning unit would be reduced.
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FISHING

This alternative could improve habitat in all fisheries over the long-term.	Trout fishing occurs in the Green River, Willow Creek, Jackson Creek, Crouse Reservoir, and Calder Pond. No change in fisherman success, satisfaction, or days is anticipated.
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HUNTING

This alternative would allocate 2,229 additional AUMs for deer initially over the long-term, providing for an increase in 1,080 deer initially and over the long-term on a year-long basis.	The planning unit provides opportunities for hunting deer. The potential increase in deer numbers, based on the present hunter success ratio, would provide an additional 4,127 deer hunter days over the short-term and long-term.
This alternative would allocate 3,458 additional AUMs for elk initially and over the long-term, providing for an increase in 542 elk initially and over the long-term on a year-long basis.	The planning unit provides opportunities for hunting elk. The potential increase in elk numbers, based on the present hunter success ratio, would provide for an additional 2,577 elk hunter days over the short-term and long-term.
This alternative would allocate 25 additional AUMs for antelope, resulting in a possible increase of 20 antelope on a 12-month basis. It would decrease sage grouse and cottontail and increase mourning dove habitat.	The planning unit provides opportunities for hunting antelope, sage grouse, cottontail, mourning dove, and waterfowl. Little affect is anticipated on hunter success, satisfaction and days.

Impacts on Livestock Grazing

The only impact identified from this alternative is that a 100 percent reduction of grazing preference would remove all livestock from public lands in the planning unit.

LIVESTOCK GRAZING

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
Enforcing a 100 percent reduction in grazing preference on 39 allotments would result in a loss of 15,901 AUMs which at present are being allocated to livestock.	Decreasing the forage allocation by 15,901 AUMs would result in the reduction of all 5,068 cattle and 17,078 sheep presently grazing on public lands in the planning unit (190,536 acres).

Impacts on Special Designation Areas

Structures and disturbance from proposed range developments are the basis for impact to Wilderness, Wild and Scenic Rivers, and Outstanding Natural Area values. Impacts to the wilderness value would occur as control could not be exerted as to the types of fence that would be constructed by livestock operators to control their livestock.

SPECIAL DESIGNATION AREAS

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
<u>WILDERNESS</u>	
Up to 400 miles of new fence may be constructed, much of it within wilderness inventory units.	The initial step in BLM's wilderness review process has been completed within the planning unit and 11 wilderness inventory units have been identified within all or part of 25 allotments. Fencing private lands would have no impact on suitability of federal lands for wilderness designation.
<u>WILD AND SCENIC RIVER</u>	
Fencing would occur within the Green River corridor.	It is unlikely that structures and disturbance would affect the suitability of the river for designation.
<u>OUTSTAND NATURAL AREA</u>	
Fencing would occur within Crouse Canyon.	It is unlikely that structures and disturbance could affect the suitability of the canyon for Outstanding Natural Area designation.

Impacts on Land Use Plans

Since state and local governments also have jurisdiction in the Three Corners Planning Unit, changes made in present grazing operations and practices are of concern to them. The analysis in this section deals with the relationship between existing land use plans, controls, and constraints and the alternative action. No conflicts between this action and existing plans were identified.

LAND USE PLANS

<u>Relationship to the Alternative</u>	<u>Existing Environment, Probable Impacts, and Affected Area</u>
None of the zoning designations applied to the area conflict with livestock grazing or range improvement programs. The policies of the Utah Division of State Lands are not consistent with the proposed use of the area's resources.	The planning unit is currently covered by three county zoning ordinances. The Division of State Lands would experience extreme difficulty in administering grazing on state lands--particularly on isolated tracts.

Impact on Socioeconomic Conditions

The total livestock industry, including those affected by this alternative would account for about 3.2 percent of the total personal income in Uintah and Daggett counties (BLM, PAA). The implementation of the alternative on the Three Corners Planning Unit would account for a 4 percent reduction of the total livestock income and 0.3 percent reduction of the total personal income in the two counties. The influence which this alternative would have on the state and regional economics is considered insignificant and is not pursued further.

The present and expected net income for ranch operators are shown for each of the three ranch sizes.

	<u>Existing Situation</u>	<u>Alternative</u>
Small Operator	\$ 1,150.00	\$ -1,008.00
Medium Operator	\$ -6,914.00	\$ -16,727.00
Large Operator	\$57,044.00	\$ 43,621.00

The total net income of livestock would be \$110,561.00.

Using this table as a base, the net value of the grazing on public land in the planning unit is \$2,158.00 to each small operator (26); \$9,813.00 to each medium operator (16); and \$13,423.00 to each large operator (3). The current value of grazing on the public lands within the planning unit is \$253,385.00.

SOCIOECONOMIC CONDITIONS

Relationship to the Alternative Existing Environment,
Probable Impacts, and Affected Area

INCOME TO SMALL OPERATORChange From Allocation

Under this alternative, the livestock operators would not be allowed to graze on public lands in the planning unit. All forage would be allocated to wildlife and other resources.

Presently 24 operators are permitted to use 12 allotments. The average small operator has 81 animal units (BLM, 1979). The typical small ranch net income is \$1,150.00 in 1977.

Under this alternative, the average small operator would still have an estimated 785 AUMs on lands other than the BLM in the planning unit. This would support about 65 AUs. With the reduction required in this alternative, the small ranch category would contain 26 operators.

The estimated existing and alternative budget for the average small rancher would be:

	Existing Situation	Alternative
Gross Income	\$8,885.00	\$7,130.00
Plus salvage payment (not calculable)		
Expenses:	\$7,735.00	\$8,138.00
Regular for 65 AUs:	\$6,207.00	
Additional costs from trespass control (each year for 1 to 5 years only):	\$1,931.00	
Net income	+\$1,150.00	-\$1,008.00

INCOME TO MEDIUM OPERATORChange From Allocation

Under this alternative, livestock operators would not be allowed to graze on the public lands on the planning unit. All forage would be allotted to wildlife and other resources.

Presently 14 operators are permitted to use 15 allotments. The average medium operator has 224 animal units. The typical medium ranch net loss is \$6,914.00

Under this alternative, the average medium rancher would still have an estimated 3,324 AUMs on lands other than the BLM in the planning unit. This would support about 277 AUs. With the required reductions, there would be 16 operators in the medium size category.

The estimated existing and alternative budget for the average medium rancher would be:

	Existing Situation	Alternative
Gross Income	\$39,006.00	\$48,235.00
From 277 AUs		
Plus salvage payment (not calculable)		
Expenses:	\$45,920.00	\$64,962.00
Regular for 277 AUs:	\$56,785.00	
Additional cost from trespass control (each year for 1 to 5 years only):	\$8,177.00	
Net Loss:	-\$6,914.00	-\$16,727.00

SOCIOECONOMIC CONDITIONS (concluded)

Relationship to the Alternative	Existing Environment, Probable Impacts, and Affected Area
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INCOME TO LARGE OPERATORChange From Allocation

Under this alternative, livestock operators would not be permitted to graze on the public lands on the planning unit. All forage would be allotted to wildlife and other resources.

Presently 7 operators are permitted to use 12 allotments. The average large operator has 705 animal units. The typical large ranch net income is \$57,044.00

Under this alternative, the average large rancher would still have an estimated 10,193 AUMs on lands other than the BLM in the planning unit. This would support about 849 AUs. With the required reductions, there would be three operators in the large size category under this alternative.

The estimated existing and alternative budget for the average large rancher would be:

	Existing Situation	Alternative
Gross Income:	\$120,060.00	\$144,583.00
From 849 AUs		
Plus salvage payment (not calculable)		
Expenses:	\$ 63,016.00	\$100,962.00
Regular for 849 AUs:	\$75,887.00	
Additional cost from trespass control (each year for 1 to 5 years only):		\$25,075.00
Net Income	\$ 57,044.00	\$ 43,621.00

INCOME FROM ALLOCATIONS TO BIG GAME

This alternative would allocate 2,229 additional AUMs for deer. Potential increase in deer numbers would provide an additional 4,127 deer hunter days.

The alternative would also allocate 3,458 additional AUMs for elk. Potential increase in elk numbers would provide an additional 2,577 elk hunter days.

The estimated 14,213 hunter days presently on the planning unit produce \$709,797.00 of gross income. This translates to approximately \$473,178.00 of net income in the Daggett and Uintah County Area. Based on the present estimated value of a hunter day of \$49.94, the additional hunter days would provide \$334,798.00 of additional gross income to the area. This would in turn mean an additional \$223,199.00 of net income for the two county area.

SOCIAL ATTITUDES

The alternative would eliminate livestock from public lands.

The reductions would lead to conflict between BLM and livestock operators. The conflict could lead to litigation. The local people would have stronger feelings that decisions are being thrust upon them which do not reflect their best interests.

The high value which is placed on the ranching way of life would continue, even though fewer people would be involved in this profession.

Increase forage allocation to big game would allow big game numbers to increase.

The ranchers would find the trespass and access demands to use public lands increasing as wildlife numbers increase. The livestock operators would close access to public lands and conflicts with off-road vehicle users would also increase.

F. SUMMARY OF MAJOR BENEFICIAL AND ADVERSE IMPACTS

The following matrix is a comparison of the major beneficial and adverse impacts for the proposal and the four alternative actions. A short summary for each resource sub-component is given if the impact is of major significance.

SUMMARY COMPARISON MATRIX--MAJOR BENEFICIAL AND ADVERSE IMPACTS

Resource Sub-Category and Present Situation	Action		
	Proposed	Full Forage Production	No Action
Sediment Yield Annual sediment yield ranges between 0.1 and 1.0 acre-feet per square mile. Average = 0.2 acre-feet per square mile. Sixty acre-feet of soil is lost annually from public land in the planning unit.	Sediment Yield would be reduced by as much as 3.51 acre feet annually. Sediment yield would increase for 1 to 3 years on areas proposed for development. This increase would be minimal.	Sediment Yield would be reduced by as much as 4.0 acre-feet annually. Sediment yield would increase for 1 to 3 years on areas proposed for development. This increase would be minimal.	Sediment Yield would be reduced by as much as 0.8 acre-feet annually. Sediment yield would increase for 1 to 3 years on areas proposed for development. This increase would be minimal.
	Salt laden sediment would increase for 1 to 3 years on 10.56 acres proposed for development on Clay Basin-Antelope Flat-Basin-Antelope Flat-Goslin Mountain Allotment. This increase would be less than 4.04 cubic yards of sediment annually.	Salts laden sediments would increase for 1 to 3 years on 14.54 acres proposed for development on Clay Basin-Antelope Flat-Goslin Mountain Allotment. This increase would be no more than 5.56 cubic yards of sediment annually.	The amount of salt laden sediments would not change as no development would be installed on Clay Basin-Antelope Flat-Goslin Mountain.
Soil Salinity Soils on 15,520 acres of Antelope Flat and Clay Basin allotments are slightly saline. All other soils within the planning unit are non-saline.	Salts yielded from 15,520 acres on Clay Basin-Antelope Flat-Goslin Mountain Allotment would be reduced. The exact amount is not known. Salt laden sediments would decrease as sediment yield decreases on Clay Basin-Antelope Flat-Goslin Mountain.	Salts yielded from 15,520 acres on Clay Basin-Antelope Flat-Goslin Mountain Allotment would be reduced. The exact amount is not known. Salt laden sediments would decrease as sediment yield decreases on Clay Basin-Antelope Flat-Goslin Mountain.	Salts yielded from 15,520 acres on Clay Basin-Antelope Flat-Goslin Mountain Allotment would be reduced. The exact amount is not known. Salt laden sediments would decrease as sediment yield decreases on Clay Basin-Antelope Flat-Goslin Mountain.
Water Quality Total annual water supply on public lands in the planning unit is approximately 130,460 acre-feet, exclusive of the Green River. Consumptive use by livestock and big game amounts to 23 acre-feet annually.	Water yield would be reduced slightly on 155,106 acres. Water yield would increase slightly for 1 to 3 years on 1,180 acres where developments are proposed.	Water yield would be reduced slightly on 178,561 acres. Water yield would increase slightly for 1 to 3 years on areas (51,477 acres) proposed for development. (47,595 acres are involved in vegetation manipulation and overlap in the two figure above.)	Water yield would be reduced slightly on 187,676 acres. No increases are predicted.
Water Quality There are 104.8 miles of stream on public lands in this planning unit. 43.8 miles consistently meet State of Utah standards for its beneficial use class for fecal coliform and nitrates but not for orthophosphate. 33.0 miles occasionally exceeds State of Utah standards for its beneficial use class for fecal coliform and nutrients. There is no data available for 28.0 miles of stream.	Sediment carried by 15 streams would be reduced.	Sediment carried by 14 streams would be reduced.	Sediment carried by all streams in the planning unit would be reduced.
	The level of orthophosphate would increase on 3.5 miles of streams fenced to protect riparian areas. The streams involved are Davenport, Jackson, and Crouse Creeks.	Levels of orthophosphate would be reduced.	The level of orthophosphate would increase on all streams but fecal coliform contamination would be reduced substantially.

SUMMARY COMPARISON MATRIX--MAJOR BENEFICIAL AND ADVERSE IMPACTS (continued)

Resource Sub-Category and Present Situation	Action			50% Reduction	No Grazing
	Proposed	Full Forage Production	No Action		
<u>Types and Subtypes (Including riparian vegetation condition)</u> 714 acres of riparian vegetation is in good condition. 23 acres of riparian vegetation is in fair condition. 14 acres of riparian vegetation is not rated as to condition.	Twenty-three acres of riparian vegetation would improve from fair to good.	3,700 acres of pinyon-juniper type would change to grass. The condition of riparian vegetation would not change.	No change in the condition of riparian vegetation would occur.	The 23 acres of fair condition riparian vegetation would be improved to good.	The 23 acres of fair condition riparian vegetation would be improved to good.
<u>Composition and Vegetation Ground Cover</u> Objective currently met on 12 allotments.	Objectives would be met on 25 allotments (147,286 acres-77 percent).	Objectives would be met on 21 allotments (167,881 acres-88 percent).	Objectives would be met on 8 allotments (62,835 acres-33 percent).	Objectives would be met on 33 allotments (134,008 acres-69 percent).	Objectives would be met on 35 allotments (133,181 acres-70 percent).
<u>Key Species</u>	Increase--21 allotments (155,106 acres-81 percent), Static-18 allotments (35,430 acres-19 percent).	Increase--24 allotments (178,561 acres-94 percent), Static-15 allotments (11,975 acres-6 percent).	Increase--5 allotments (42,398 acres-22 percent), Static-32 allotments (127,543 acres-67 percent), Decrease-2 allotments (20,595 acres-11 percent).	Increase--38 allotments (187,676 acres-98 percent), Static-1 allotment (2,860 acres-2 percent).	Increase--35 allotments (133,181 acres-70 percent), Static-4 allotments (57,355 acres-30 percent).
<u>Threatened and Endangered Plant Species</u> Five proposed endangered plant species and six candidate threatened or endangered plant species occur or may occur within the Three Corners Planning Unit.	Disturbance of 1751.2 acres of land. Inadvertent loss could occur.	Disturbance of 51,634.2 acres of land. Inadvertent loss could occur.	Disturbance of 1,268.48 acres of land. Inadvertent loss could occur.	Disturbance of 7 acres of land. Inadvertent loss could occur.	No land disturbance.
<u>Forage Production (Present 34,343 AUMs)</u>	Estimated (20 years) 36,203 AUMs (increase 1,860 AUMs).	Estimated (20 years) 43,524 AUMs (increase 9,181 AUMs).	Estimated (20 years) 34,710 AUMs (increase 367 AUMs).	Estimated (20 years) 35,881 AUMs (increase of 1,538 AUMs)	Estimated (20 yrs.) 36,428 AUMs (increase 2,585 AUMs).
<u>Forage Condition (Present Condition)</u> Good-55,836 acres (30%) Fair-126,285 acres (66%) Poor-8,415 acres (4%) 190,536 acres (100%)	Condition Expected Good 80,858(43%) Fair 101,263(53%) Poor 8,415(4%) 190,536 (100%)	Condition Expected Good 87,069 (46%) Fair 98,752 (52%) Poor 4,715 (2%) 190,536 (100%)	Condition Expected Good 63,157 (33%) Fair 118,964 (63%) Poor 8,415 (4%) 190,536 (100%)	Condition Expected Good 80,254 (42%) Fair 101,867 (54%) Poor 8,415 (4%) 190,536 (100%)	Condition Expected Good 110,984(58%) Fair 71,137(38%) Poor 8,415(4%) 190,536(100%)
<u>Trend in Forage Condition</u> Trend has been determined for 64,707 acres on five allotments within the planning unit. 43,129 acres are improving, 21,578 acres are static, and 0 acres are declining.	Improving-62,027 acres (33%), Static 128,509 acres (67%), Declining-0 acres.	Improving-75,973 acres (40%), Static-114,563 acres (60%), Declining-0 acres.	Improving-47,657 acres (25%), Static-142,879 (75%), Declining - 0 acres.	Improving-72,019 (38%) Static-118,157 (62%) Declining-0 acres.	Improving-66,913 (35%), Static-123,623 (65%), Declining-0 acres.

SUMMARY COMPARISON MATRIX--MAJOR BENEFICIAL AND ADVERSE IMPACTS (continued)

Resource Sub-Category and Existing Situation	Proposed	Action			50% Reduction	No Grazing
		Full Forage Production	No Action	Initial and long-term allocation of forage for an increase of 1,080 deer annually.		
Mule Deer 2,047 deer summer in the planning unit. 5,266 deer winter in the area.	Initial forage increases would be allocated for 781 deer and a long-term increase for 1,080 deer.	Initial and long-term allocation of forage for a decrease of 527 deer annually.	Initial and long-term allocation of forage for an increase of 1,080 deer annually.	Initial allocation of forage for an increase of 781 deer annually and 1,080 deer annually in the long-term.	Initial allocation of forage for an increase of 1,080 deer annually.	Initial allocation of forage for an increase of 1,080 deer annually.
Deer habitat is rated as good in nine allotments and fair on the remaining allotments. (Deer use an estimated 8,070 AUMs of 10,296 allocated.)	Increase in quality of deer winter range on 12,297 acres. No change on 16,756 acres and slight reduction on the balance.	Decrease in quality of all deer winter ranges.	Quality of winter range not expected to change.	Decrease in quality of 57,355 acres of winter range.	Decrease in quality of 57,355 acres of winter range.	Decrease in quality of 57,355 acres of winter range.
Elk Three separate herds of elk totaling about 345 animals are present in the Three Corners Planning Unit during summer. This number increases to approximately 473 during winter months.	Forage increases (initial) for 345 elk and 542 long-term would be provided.	Initial and long-term allocation of forage for a decrease of 252 elk annually.	Initial and long-term allocation of forage for an increase of 542 elk annually.	Initial allocation of forage for an increase of 542 elk annually.	Initial allocation of forage for an increase of 542 elk annually.	Initial allocation of forage for an increase of 542 elk annually.
Pronghorn Antelope Summer antelope population on public is an estimated 284 animals. Winter population is an estimated 287 animals. Antelope habitat is rated as good (25 AUMs are available for antelope herd expansion).	Potential forage increase would allocate forage for an initial and long-term increase of 20 antelope. Habitat quality would decrease on 42,292 acres as grass increases.	Initial and long-term allocation of forage for a decrease of 20 antelope annually. Quality of antelope range would improve.	Initial and long-term allocation of forage for an increase of 20 antelope annually. Quality of antelope range would not change.	Initial and long-term allocation of forage for an increase of 20 antelope annually. Decrease in quality of 42,292 acres of antelope range.	Initial and long-term allocation of forage for an increase of 20 antelope annually. Decrease in quality of 42,292 acres of antelope range.	Initial and long-term allocation of forage for an increase of 20 antelope annually. Decrease in quality of 42,292 acres of antelope range.
Threatened and Endangered Species (Bald Eagle) Approximately 15 bald eagles winter annually within the planning unit in the Browns Park Area.	No change in prey base. No adverse impacts would occur.	No change in prey base. No adverse impacts would occur.	No change in prey base. No adverse impacts would occur.	No change in prey base. No adverse impacts would occur.	No change in prey base. No adverse impacts would occur.	No change in prey base. No adverse impacts would occur.
Fish Five species of fish occur in three streams, one pond and one reservoir within the planning unit of 35.8 miles of stream-bank or reservoir shoreline on public land, fisheries habitat is: Excellent 2.8 miles Good 8.3 miles Fair 6.5 miles Poor 11.1 miles unknown 7.1 miles	All riparian vegetation would improve or remain good condition.	All riparian vegetation would remain in good or fair condition.	All riparian vegetation would remain in good or fair condition.	All riparian vegetation would improve or remain in good condition.	All riparian vegetation would improve or remain in good condition.	All riparian vegetation would improve or remain in good condition.

SUMMARY COMPARISON MATRIX--MAJOR BENEFICIAL AND ADVERSE IMPACTS (continued)

Resource Sub-Category and Existing Situation	Action			
	Proposed	Full Forage Production	No Action	50% Reduction
Cultural Resources Approximately 47 prehistoric and historic sites have been recorded in the planning unit. One historic site is a National Register Nominee.	Damage could occur to cultural resources on 461.2 acres in 30 Allotments.	Damage could occur to cultural resources on 4,537.06 acres in 32 allotments.	Damage could occur to cultural resources on 8.48 acres in 3 allotments.	Damage could occur to cultural resources on 800 acres of public and private land.
Paleontology Morrison and Fort Union formations, and Hilliard Shale occur within the planning unit. These contain fossil remains of dinosaurs, plants, and invertebrates.	Damage could occur to paleontological resource on 21.39 acres in two allotments.	Damage could occur to paleontological resources on 31.02 acres in 4 allotments.	No significant fossil-bearing formations are located in the 2 allotments where developments are proposed.	No significant fossil-bearing formations are located in the 2 allotments where developments are proposed. Locations and magnitude are unknown as locations of fences are unknown.
Visual Resources Of five possible visual resource management (VRM) classes, four have been identified within the planning unit.	No impact anticipated. Visual modification from 71 range development and 1,660 acres of vegetation manipulation would be compatible with the VRM class areas in which it would occur.	Visual modification from individual projects (310 range developments, 102,954 acres of vegetation manipulation) would generally be compatible with the VRM class areas in which it would occur, but the cumulative impact could conflict with VRM class objectives in some cases.	No impact anticipated. Visual modification from 14 range developments and 1,260 acres of vegetation manipulation would be compatible with the VRM class areas in which it would occur.	No impact anticipated. Visual modification from 3.5 miles of fencing would be compatible with the VRM class areas in which it would occur.
Recreation Resource There are 31 uninventoried recreation sites within the planning unit. Hunting, fishing, and float-boating are the major types of recreation, accounting for 25,456 visitor days a year.	Although unlikely, as many as 10 inventoried recreation sites could be directly impacted by range developments or vegetation manipulation. If impacted, the recreational value of inventoried sites could be reduced.	Although unlikely, as many as 15 inventoried recreation sites could be directly impacted by range developments or vegetation manipulation. If impacted, the recreational value of inventoried sites could be reduced.	Although unlikely, as many as 3 inventoried recreation sites could be directly impacted by range developments or vegetation manipulation. If impacted, the recreational value of inventoried sites could be reduced.	Six inventoried sites could be impacted by range developments or vegetation manipulation. Values could be reduced.
Off-Road Vehicle Usually occurs in association with hunting.	Some of the unmaintained trails in 13 allotments could be crossed by fences (31 miles proposed) reducing access within the planning unit.	Some of the unmaintained trails in 13 allotments could be crossed by fence (92 miles proposed), reducing access within the planning unit.	No impact. No new fencing would occur.	No impact anticipated. It is unlikely that 3.5 miles of fence would reduce access within the planning unit.
Fishing Visitor days river fishing = 782 annually. Visitor days lake fishing = 585 annually.	Little affect on fishing opportunities is anticipated.	Little affect on fishing opportunities is anticipated.	No impact on fishing opportunities would occur.	Little affect on fishing opportunities is anticipated.

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SUMMARY COMPARISON MATRIX--MAJOR BENEFICIAL AND ADVERSE IMPACTS (concluded)

Resource Sub-Category and Existing Situation	Proposed		Full Forage Production		Action		50% Reduction		No Grazing	
	No impact anticipated. It is unlikely that fencing in Crouse Canyon (1.5 miles proposed) would affect the suitability of the Canyon for designation.		No impact anticipated. It is unlikely that fencing in Crouse Canyon (1.5 miles proposed) would affect the suitability of the Canyon for designation.		No impact anticipated.		No impact. It is unlikely that fencing in Crouse Canyon (1.5 miles proposed) would affect the suitability of the Canyon for designation.		No impact anticipated. Although there would be no BLM control on design and construction, it is unlikely that fencing of private and state lands in Crouse Canyon would affect the suitability of the Canyon for designation.	
Outstanding Natural Area Crouse Canyon is being considered by the BLM for designation as an Outstanding Natural Area.	Small - \$ 2,493.00 Medium - -4,543.00 Large - 67,526.00	Small - \$ 492.00 Medium - -9,559.00 Large - 57,141.00	Small - \$ 1,150.00 Medium - -6,945.00 Large - 57,044.00	Small - \$ 2,139.00 Medium - -5,643.00 Large - 83,175.00	Small - \$1,008.00 Medium - -16,727.00 Large - 43,621.00					
Economics Average livestock operators net income.										
Total annual net income to livestock operators.	\$329,832.00	\$468,912.00	\$335,477.00	\$330,357.00	\$207,069.00	\$110,561.00				
Social Attitudes There are strong feeling of powerlessness among some planning unit users. They feel, for example, that the "Gorge" (Flaming Gorge Reservoir) came upon "their" land without their knowledge or understanding of it consequences. Most of Daggett and Uintah county lands are controlled by federal and state agencies--the Forest Service, BLM, Bureau of Reclamation, Fish and Wildlife Service, Nation Park Service, Utah Division of Wildlife Resources, and Utah State Land Division. Local residents feel that their interests have not been, and probably will not be, considered seriously in further land use decisions.		Livestock operators would feel subjected to more government intervention and they would feel decisions were thrust upon them. Since forage would be permitted through temporary non-renewable permits, some ranchers would feel they did not get their fair share of forage. Ranchers would receive increased trespass and ORV conflicts from increased hunters.		Continued implementation of existing grazing management would be considered to be government intervention. Some people would have strong feelings that decision are being thrust upon them.		Ranchers would believe the BLM does not understand grazing, wildlife, and soil problems, and litigation would result. In retaliation livestock operators would close access to several parcels of public lands, and conflict would result with hunters, ORV users, and government employees administering public land.				

CHAPTER 9

CHAPTER 9

CONSULTATION AND COORDINATION

1. The purpose of this chapter is to provide a framework for the consultation and coordination of the various agencies and organizations involved in the development and implementation of the National Water Conservation Act.

2. The following are the agencies and organizations involved in the development and implementation of the National Water Conservation Act:

3. The following are the responsibilities of the agencies and organizations involved in the development and implementation of the National Water Conservation Act:

CHAPTER 9 CONSULTATION AND COORDINATION

A. HISTORY OF COORDINATION EFFORTS

The Three Corners Planning Unit was originally broken into two distinct units--the Browns Park and Diamond Mountain units. The two units had individual management framework plans (MFP) prior to their consolidation in late 1977. Public meetings were held to incorporate public opinion in those MFPs. The Diamond Mountain public meeting was held in March of 1974, in Vernal, Utah and was attended by 47 people who represented themselves, livestock operations, private industry, sporting concerns, and federal, state, and local government. The Browns Park public meeting was held in August, 1977, in Manila, Utah and was attended by 19 people representing similar concerns.

Contacts were also made to receive public input into the Diamond Mountain MFP for those lands in Colorado administered by the Vernal District Office. Meetings to this end were held with the Moffat County Commissioners (March 4, 1974), the Colorado Game, Fish, and Recreation Department (March 5, 1974), and representatives from Dinosaur National Monument (March 5, 1974).

B. COORDINATION IN DEVELOPMENT OF THE PROPOSAL

Development of this proposal has made considerable use of public involvement in the BLM planning system. Interviews were conducted with the Uintah County Commission and other concerned individuals to provide input into the Vernal Planning Area Analysis. Landowners and livestock operators were also interviewed during preparation of the Unit Resource Analysis.

A public meeting was held in Vernal on April 13, 1978. The purpose of this meeting was to discuss land use plans in the Three Corners Planning Unit prior to formulation of the proposal. Those not able to attend were encouraged to send comments to the BLM District Manager in Vernal.

Attending the public meeting in Vernal were approximately 100 people representing themselves individually or those organizations and agencies listed below:

- Diamond Mountain Landowners Association
- Uintah County Commission
- Uintah County Search and Rescue
- Uintah County Farm Bureau
- U.S. Forest Service (Ashley National Forest)
- Utah Cattlemen's Association
- Utah State Parks and Recreation
- Uintah County Historian

Letters were received from:

- Outdoors Unlimited, Inc. (Wyoming, Utah, Nevada Chapter)
- United Sportsman's Council of Colorado

C. CONSULTATION AND COORDINATION IN PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT

The Three Corners Environmental Statement team was organized in May, 1977, at the Bureau of Land Management District Office in Richfield, Utah. The interdisciplinary team consisted of specialists in wildlife, fisheries, range, recreation, botany, soils, geology, cultural resources, and socio-economics. The following sections summarize the consultation and coordination carried out by the team specialists in the course of analyzing the proposal.

1. Federal Contacts

The following are the contacts initiated and actions completed in preparation of the draft statement. Comments received from these agencies were considered in preparation of the statement.

Agency	Nature of Contact	Response	Action Taken
Soil Conservation Service	Requested data assistance and help in analysis.	yes	Data not available; help in analysis provided.
U.S. Fish and Wildlife Service	Requested data assistance.	yes	Confirmed data Letter 1.
U.S. Agricultural Stabilization and Conservation Service	Requested data assistance.	yes	Provided data assistance.
U.S. Forest Service	Requested data assistance	yes	Provided assistance; data inconclusive.
U.S. Army Corps of Engineers	Requested input into environmental studies.	No Corps of Engineers projects in area; unable to contribute usefull information.	None.
National Park Service	Requested data assistance.	yes	Provided data assistance.
Advisory Council on Historic Preservation	Informed the Council of the proposed action and requested procedural assistance.	Yes	Provided assistance.

2. State Contacts

Agencies of state government having jurisdictional interests or special expertise in the project, listed below, have been contacted and have supplied statement data.

Agency	Nature of Contact	Response	Action Taken
Utah Division of Wildlife Resources	Requested data assistance.	Yes	Provided data assistance.
Utah State Environmental Coordinating Committee	Requested consultation.	Yes	Only agency choosing to respond was Division of State History.
Utah State Department of Agriculture.	Requested consultation	Yes	Provided consultation.
Utah Department of Transportation	Requested consultation.	Yes	Provided consultation.
Utah Division of State Lands	Requested data assistance.	Yes	Provided data assistance.
Utah Division of State History	Informed agency of the proposed action and requested data assistance.	Yes	Provided data assistance.
Utah State Historic Preservation Officer	To comply with National Historic Preservation Act; preparation of memorandum of understanding.	Yes	A "Memorandum of Understanding" between the Bureau of Land Management and the State of Utah has been prepared and attached as Letter 2.
Colorado State Historic Preservation Officer.	Requested comments on the Utah memorandum of understanding dealing with cultural resources.	Yes	Comments received (see Letter 2).
Colorado State Land Board	Requested data assistance.	Yes	Provided data assistance.
Colorado State Game and Fish Department	Informed agency of the proposed action and requested data assistance.	Yes	Provided data assistance.

3. Local Government

The following public officials at the local level were advised of the project. Their views and comments were considered in preparation of the statement.

Agency	Nature of Contact	Response	Action Taken
Uintah County Zoning and Building Administrator.	Informed agency of the proposed action and requested data assistance.	Yes	Provided data assistance.
Uintah County Assessor	Requested data assistance.	Yes	Provided data assistance.
Uintah County Recorder	Requested data assistance.	Yes	Provided data assistance.
Daggett County Clerk	Informed agency of the proposed action and requested data assistance.	Yes	Provided data assistance
Moffat County Planning Commission	Informed agency of the proposed action and requested data assistance.	Yes	Provided data assistance.

D. COORDINATION IN REVIEW OF THE DES

The following list identifies those agencies, bureaus, and groups that will receive a copy of the draft environmental statement and be requested to submit written comments.

1. Federal Agencies

- Department of Agriculture
 - Agricultural Stabilization and Conservation Service
 - Forest Service
 - Soil Conservation Service
- Department of the Interior
 - Geological Survey
 - Fish and Wildlife Service
 - Bureau of Indian Affairs
 - Bureau of Mines
 - Bureau of Reclamation
 - Heritage Conservation and Recreation Service
 - National Park Service
 - Dinosaur National Monument
 - Office of the Solicitor

Department of Commerce
Advisory Council on Historic Preservation
Environmental Protection Agency

2. State Agencies and Entities

State of Utah
Clearing House (A-95)
Department of Agriculture
Department of Natural Resources
Division of Wildlife Resources
Division of Lands
University of Utah
Utah State University
State of Colorado
Governor's Clearing House
Division of Wildlife
State Historical Society
State of Wyoming
Wyoming Fish and Game

3. Local Agencies

Uintah County Commissioners (Utah)
Daggett County Commissioners (Utah)
Moffat County Commissioners (Colorado)
Sweetwater County Commissioners (Wyoming)

4. Nongovernment Organizations

Ada County Fish and Game League
Ashley Valley Woolgrowers
Audubon Society
Brigham Young University
Colorado Cattlemen's Association
Colorado Open Space Council
Colorado Plateau Environment Advisory Council
Colorado Wool Grower's Association
Common Cause
Council on Utah Resources
Defenders of the Outdoor Heritage
Defenders of Wildlife
Enchanted Wilderness Association
Environmental Action
Environmental Awareness
Environmental Defense Fund
Friends of the Earth
Good Earth
Institute of Ecology
Izaak Walton League
League of Women Voters
National Council of Public Land Users

National Parks and Recreation Association
National Resources Defense Council
National Stock Grower's Association
National Wildlife Federation
Nature Conservancy
Nevada Outdoor Recreation Association
Oregon Environmental Council
Pacific Legal Foundation
Pro-Utah, Inc.
Public Lands Council
Rocky Mountain Center on Environment
Rocky Mountain Sportsmen Association
Save Our Canyons Committee
Sierra Club
Society of Range Management
The Wilderness Society
The Wildlife Society
Utah Cattlemen's Association
Utah Chapter, Trout Unlimited
Utah Environment Center
Utah Farm Bureau
Utah Nature Study Society
Utah Sportsmen Association
Utah Archaeological Society
Utah Wildlife and Outdoor Recreation Federation
Utah Wool Grower's Association
Vernal Chamber of Commerce
Vernal Rod and Gun Club
Women's Conservation Council of Utah

5. Congressional

Colorado Delegation
Utah Delegation

6. Interested Individuals

Copies of this draft environmental statement will be available for public inspection at the Bureau of Land Management Offices listed below:

Washington Office of Public Affairs
18th and C Street, N.W.
Washington, D.C. 20240
Phone (202) 343-4151

Utah State Office
University Club Building
135 East South Temple
Salt Lake City, Utah 84111
Phone (801) 524-4257

Vernal District Office
170 South 500 East
Vernal, Utah 84078
Phone (801) 789-1362



United States Department of the Interior
FISH AND WILDLIFE SERVICE

AREA OFFICE COLORADO-UTAH
1426 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138

In Reply Refer To

March 22, 1979

MEMORANDUM

TO: District Manager, Bureau of Land Management
Richfield District

FROM: Area Manager,
Area 5

SUBJECT: Endangered Species in the Three Corners Planning
Unit

We have reviewed your list of candidate, proposed, and listed threatened and endangered species which occur within the Three Corners Planning Unit. We have nothing to add to that list.

We appreciate your providing us with the list. Your thoroughness aided our review of the project.

Thank you for your interest and cooperation in conserving endangered species.



**COLORADO
HISTORICAL
SOCIETY**

The Colorado Heritage Center 1300 Broadway Denver, Colorado 80203

February 5, 1979

Mr. Craig Harmon
EPS Archaeologist
Richfield District
150 East 900 North
Richfield, Utah 84701

Dear Mr. Harmon:

My concerns in the correspondence of October 13, 1978, have been clarified in a phone conversation of January 19, 1979. (1) All Cultural Resources will be salvaged if avoidance is not possible, not just those Eligible for inclusion in the National Register. I find this extension to All Cultural Resources acceptable. (2) The reference in par. III to 36 CFR 800 does, in fact, include consultation process with the Advisory Council.

Therefore, I find the Memorandum of Understanding between the BLM, Richfield District Office Utah, and the Utah State Historic Preservation Officer satisfactory.

Sincerely,

Arthur C. Townsend
Arthur C. Townsend
State Historic Preservation Officer

ACT(BJL):ng
cc: B. Rippeteau, State Archaeologist
J. Hartmann, Coordinator, Historic Preservation



STATE OF UTAH

Scott M. Matheson, Governor

**DEPARTMENT OF
DEVELOPMENT SERVICES**

Michael D. Gallivan
Executive Director
104 State Capitol
Salt Lake City, Utah 84114
Telephone: (801) 533-5961

June 21, 1978

Craig Harmon
EPS Archaeologist
Bureau of Land Management
Richfield District Office
150 East 900 North
Richfield, Utah 84701

RE: Memorandum of Understanding for Three Corners Range
Management EIS

Dear Mr. Harmon:

The staff has reviewed the enclosed memorandum of understanding and concur with its intentions. If properly implemented it will adequately protect cultural resources, although we would have liked a sample survey as part of the planning stages. This letter is not to be used as clearance for the EIS. We will comment when the draft EIS is prepared.

If you have any questions or concerns, please call or write Wilson G. Martin, Preservation Development Coordinator.

Sincerely,

Michael D. Gallivan

Michael D. Gallivan
Executive Director
and
State Historic Preservation Officer

WCM:jrr:8611

CULTURAL RESOURCES
MEMORANDUM OF UNDERSTANDING
THREE CORNERS RANGE MANAGEMENT ENVIRONMENTAL STATEMENT
BETWEEN
THE BUREAU OF LAND MANAGEMENT
AND
THE STATE OF UTAH

1. Purpose

The Bureau of Land Management, hereinafter referred to as the Bureau, is preparing the Three Corners Range Management Environmental Statement (Three Corners ES) under the provisions of the National Environmental Policy Act of 1969. The Bureau has determined that cultural values could be damaged or lost as a result of actions proposed in the Three Corners ES. The following kinds of actions are proposed on public lands administered by the Bureau:

- a. Vegetative manipulation,
- b. Pipeline construction,
- c. Spring development,
- d. Reservoir construction,
- e. Fenceline construction.

The Utah State Historic Preservation Office, hereinafter referred to as the State, is interested in assuring that cultural values in Utah be protected. The Bureau and the State have consulted and agree as to the measures, outlined in this agreement, which should be undertaken to protect these values should authorization be granted to use public lands in Utah administered by the Bureau for the purpose of any of the above mentioned proposed actions. In this agreement, "cultural resources" means data and sites which have archaeological, historical, architectural, or cultural importance and interest.

Investigators will be qualified to evaluate these "cultural resources." Qualifications of investigators will be submitted to the State Historic Preservation Officer.

II. Authority

This agreement is authorized under the Federal Land Policy and Management Act of 1976 and the National Historic Preservation Act of 1966. It is in accord with Bureau policies and programs. It does not abrogate nor amend any other agreement between the Bureau and the State.

III. Responsibilities and Procedures

The Bureau will comply with 36 CFR 800 in identifying sites which are listed in or eligible for inclusion in the National Register of Historic Places.

A. As part of the planning and environmental analysis required prior to major grazing management decisions, the Bureau will search for archaeological and historical literature concerning the Three Corners area. Literature and records searches have been conducted for all public lands that would be affected by the Three Corners proposal.

B. After completing the planning and environmental analysis process, should the proposed management be implemented, the Bureau will enforce the following stipulations:

1. Prior to initiation of ground-disturbing activities, literature searches and intensive surveys will be undertaken on all areas which would be disturbed.
2. Wherever possible and feasible, cultural resources will be avoided by construction and related activities. This will be accomplished mainly by

B. Either party may request revision or cancellation of this agreement by written notice, not less than 30 days prior to the time when such action is proposed.

C. Any problems resulting from this agreement which cannot be resolved by the Bureau and the State will be referred to the Secretary of the Interior and the Governor of Utah for resolution.

DATE 8/17/78

David L. Howard
UTAH STATE DIRECTOR
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

DATE July 31, 1978

W. D. Bell
UTAH STATE HISTORIC PRESERVATION
OFFICER

regulating vegetative manipulation and spring development activities and adjusting the location of other facilities such as pipelines and fences. Significant cultural resources facing inundation due to proposed reservoir construction will be salvaged to recover data that would otherwise be lost.

3. A professional archaeologist may be required to be present when ground-disturbing operations are underway.

4. Subsurface cultural resources that are encountered during any construction will be salvaged if there is no other recourse in such a situation.

C. Wherever it is not possible and feasible to avoid sites that contain cultural values, the Bureau will consult with the State to determine the most satisfactory means of mitigating damage, as required by 36 CFR 800.

0. The Bureau will provide cultural resource reports, technical reports, and other pertinent material to the State.

E. The State will provide the Bureau with a letter, for use as an exhibit in the Three Corners ES, to the effect that the procedures herein proposed by the Bureau, if correctly implemented, will satisfy the State's interest.

IV. The attached list identifies the specific actions that the Bureau anticipates will be included in the Three Corners ES. The list may be brought up to date, as necessary, without amending this agreement in any way.

V. Implementation

A. This agreement will become effective on the date of the last signature on this agreement.

APPENDIXES, GLOSSARY, AND REFERENCES

APPENDIX I-1
Three Corners Planning Unit Land Status Details

Throughout the environmental statement (ES), "Three Corners Planning Unit" is used to describe the area. Not all of the acreage in the planning unit, however, is involved in the proposed action. The following types of land are excluded:

- a) Public lands in grazing allotments shared with adjacent planning units which are to be covered in future ESs.
- b) Public lands in scattered small parcels. These lands are not authorized for grazing use at the present time and would not be authorized in the future. These small scattered parcels of public lands are composed of two groups:
 - (1) Those having potential for exchange, and
 - (2) Those having aesthetic value related to the surroundings of the Jones Hole Fish Hatchery.
- c) State land outside of grazing allotments.
- d) Private land outside of grazing allotments, including:
 - (1) Private ranches, farms, and other holdings, and
 - (2) Former private land purchased by wildlife agencies.

Table 1 shows the acreage in each categories and locations are shown on Figure 1. While the proposed action focuses on the lands within the livestock grazing allotments, the impact analysis (Chapter 3) considers the entire area and the surrounding region.

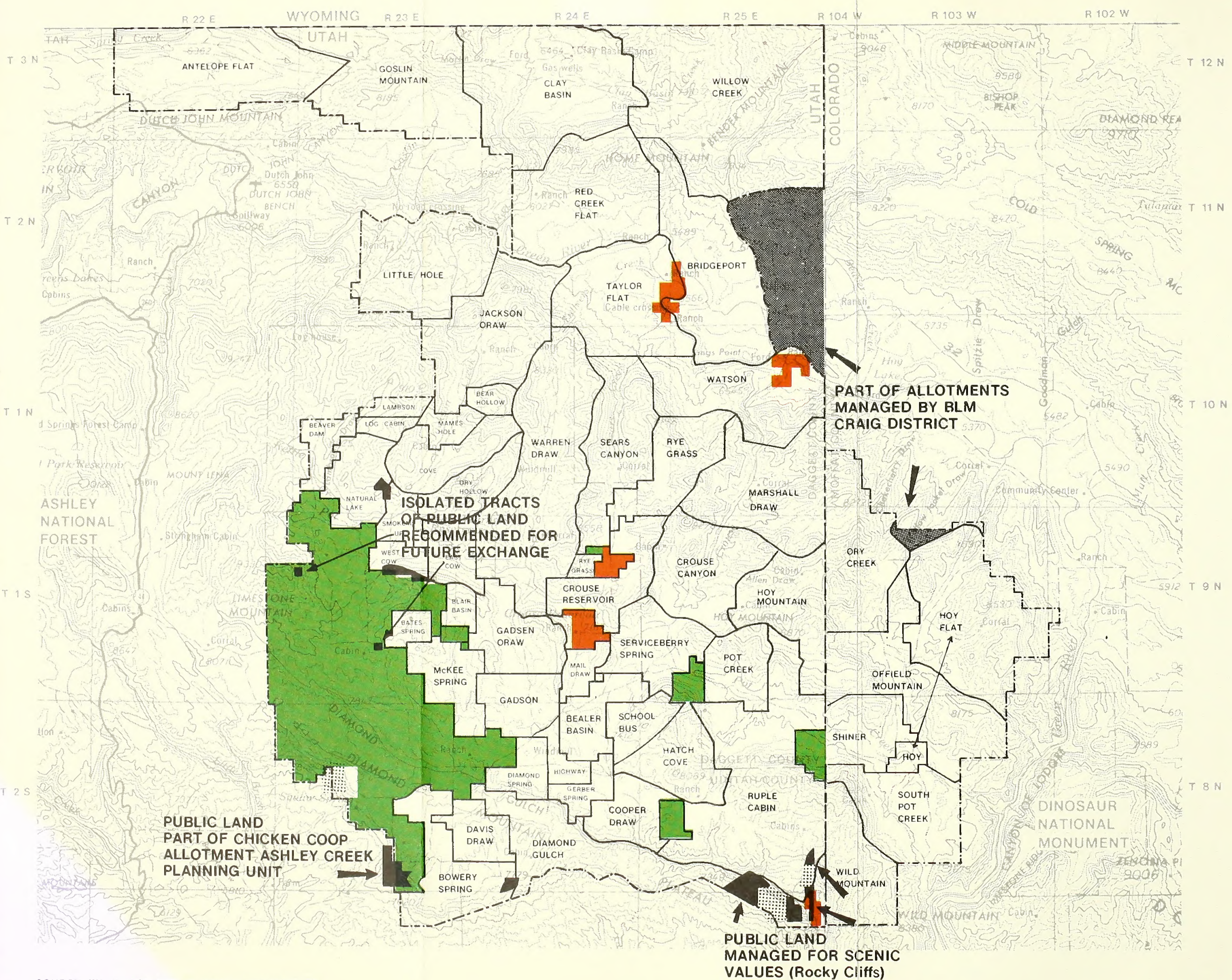
APPENDIX I-1

TABLE 1

Land Ownership in the Three Corners Planning Unit

Landowner	Land Area in Allotments Listed in ES	Land Area Outside Allotments Listed in ES	Total Land Area in Planning Unit
Public Land (BLM)	190,536	8,000	198,535
State	18,749	2,000	20,749
Private			
a. Private	69,930	31,699	101,629
b. Former private now owned by wildlife agencies	3,581	1,589	5,170
TOTAL	282,796	43,288	326,083

Source: Three Corners Planning Documents.



SOURCE: THREE CORNERS PLANNING DOCUMENTS

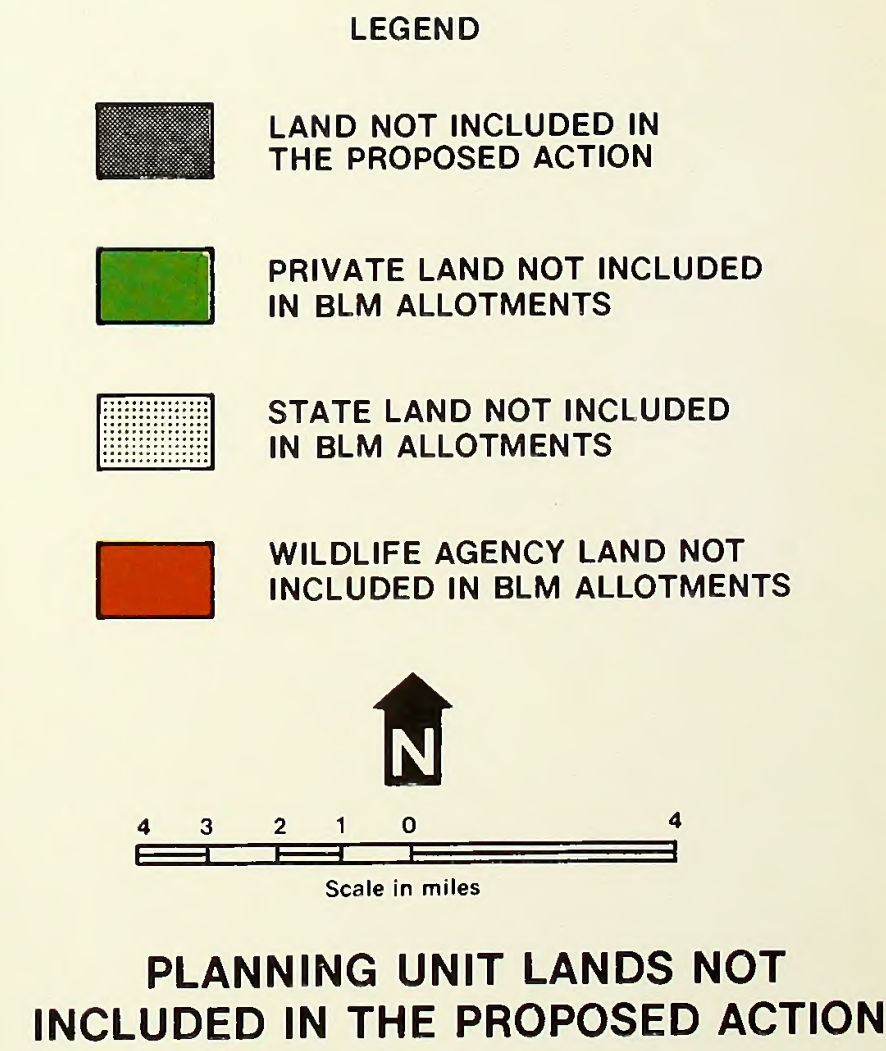


FIGURE 1

APPENDIX I-2

Three Corners Planning Unit--Key Species List

Proposed Component and Allotment	Common Name	Scientific Name	Critical Periods ^a
<u>CONTINUATION OF EXISTING MANAGEMENT</u>			
<u>No Livestock Grazing</u>			
Rye Grass	Needle-and-thread grass	<u>Stipa comata</u>	5/20-8/1
	Big sagebrush	<u>Artemisia tridentata</u>	7/1-10/5
<u>Continue Allotment-Wide Grazing</u> <u>Spring (April and May only)</u>			
Bridgeport	Needle-and-thread grass	<u>Stipa comata</u>	5/20-8/1
Taylor Flat- Watson	Indian ricegrass	<u>Oryzopsis hymenoides</u>	5/20-8/1
	Crested wheatgrass	<u>Agropyron cristatum</u>	5/30-7/25
	Bitterbrush	<u>Purshia tridentata</u>	5/20-7/5
<u>Spring and Fall (Begin in May)</u>			
Bowery Spring	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
	Bitterbrush	<u>Purshia tridentata</u>	5/20-7/15
Gadsen Draw- Gerber Spring	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
	Bitterbrush	<u>Purshia tridentata</u>	5/20-7/15
Highway	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
	Bitterbrush	<u>Purshia tridentata</u>	5/20-7/15
McKee Spring	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
	Bitterbrush	<u>Purshia tridentata</u>	5/20-7/15
Natural Lake	Columbia needlegrass	<u>Stipa columbiana</u>	6/5-7/25
	True-mountain mahogany	<u>Cercocarpus montanus</u>	6/1-7/15
Smokem-up	Letterman needlegrass	<u>Stipa lettermanii</u>	6/1-7/20
<u>Spring-Summer-Fall (Begin in May or June)</u>			
Bates Spring	Letterman needlegrass	<u>Stipa lettermanii</u>	5/25-7/20
	Black sagebrush	<u>Artemisia nova</u>	8/1-10/15
Beaver Dam	Columbia needlegrass	<u>Stipa columbiana</u>	6/5-7/25
	True mountain-mahogany	<u>Cercocarpus montanus</u>	6/1-7/15

APPENDIX I-2 (continued)

Proposed Component and Allotment	Common Name	Scientific Names	Critical Periods ^a
Blair Basin	Letterman needlegrass	<u>Stipa lettermanii</u>	5/25-7/20
East Cow	Needle-and-thread grass	<u>Stipa comata</u>	6/1-7/20
Log Cabin	Columbia needlegrass	<u>Stipa columbiana</u>	6/5-7/25 6/1-7/15
Mail Draw	Crested wheatgrass	<u>Agropyron cristatum</u>	5/20-7/15
Mame's Hole-Bear Hollow	Columbia needlegrass	<u>Stipa columbiana</u>	5/20/7/15
<u>Spring-Summer</u> (Begin in June)			
Cove	Needle-and-thread grass	<u>Stipa comata</u>	6/1-7/20
West Cow	Needle-and-thread grass	<u>Stipa comata</u>	6/1-7/20
<u>Continue Existing Improved Management</u>			
<u>Rest Rotation</u>			
Hoy Mtn.	Bluebunch wheatgrass	<u>Agropyron spicatum</u>	6/20-8/15
Red Creek	Crested wheatgrass Big sagebrush	<u>Agropyron cristatum</u> <u>Artemisia tridentata</u>	5/30-7/25 7/1-10/5
<u>Deferred Rotation</u>			
Dry Creek-South Pot Creek-Wild Mountain	Bluebunch wheatgrass Bitterbrush	<u>Agropyron spicatum</u> <u>Purshia tridentata</u>	6/20-8/15 5/20-7/15
<u>Deferred Rotation and Rest Rotation</u>			
Ruple Cabin	Bluebunch wheatgrass Bitterbrush	<u>Agropyron spicatum</u> <u>Purshia tridentata</u>	6/20-8/15 7/20-7/15
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>			
<u>Spring, Summer, and Fall, with Periodic Spring Deferment</u>			
Clay Basin-Antelope Flat-Goslin Mtn.	Needle-and-thread grass Big sagebrush	<u>Stipa comata</u> <u>Artemesia tridentata</u>	5/25-7/15 7/1-10/5

APPENDIX I-2 (concluded)

Proposed Component and Allotment	Common Name	Scientific Names	Critical Periods ^a
Gadson	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
Hatch Cove	Indian ricegrass	<u>Oryzopsis hymenoides</u>	6/10-8/1
Hoy Flat	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/15
Jackson Draw- Crouse Canyon- Dry Hollow	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
Little Hole	Needle-and-thread grass	<u>Stipa comata</u>	5/15-7/5
Offield Mtn.	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/15
Pot Creek	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/15
School Bus	Indian ricegrass	<u>Oryzopsis hymenoides</u>	6/10-8/11
Sear Canyon- Marshall Draw	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/10
Serviceberry Spring	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/15
Shiner	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
Warren Draw	Letterman needlegrass	<u>Stipa lettermanii</u>	5/20-7/15
Willow Creek	Bluebunch wheatgrass	<u>Agropyron spicatum</u>	6/15-8/15
<u>Spring and Fall, With Periodic Spring Deferment</u>			
Bealer Basin- Diamond Gulch- Diamond Spring	Indian ricegrass Bitterbrush	<u>Oryzopsis hymenoides</u> <u>Purshia tridentata</u>	6/10-8/1 5/20-7/15
Cooper Draw	Needle-and-thread grass	<u>Stipa comata</u>	5/20-7/10
	True mountain-mahogany	<u>Cercocarpus montanus</u>	5/20-7/5
Davis Draw-Crouse Reservior-Lambson	Western wheatgrass	<u>Agropyron smithii</u>	

Source: Three Corners Planning Documents

^aPeriods which are critical for necessary growth and reproduction requirements of key species.

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation												Proposed Forage Allocation (AUMs)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)														
Proposed Action Sub-component and Allotment	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Used ^d				Estimated Current Wildlife Use (AUMs) ^e			Initial			Long Term (20th Year)						
	P.L.	St.	Prvt.	Total	Inv.	Other	Livestock		Big Game			Kind	No.	AUMs Pref.	AUMs Actual	Deer	Elk	Ant.	Livestock		Big Game		Livestock		Big Game			
							From	to	Deer	Elk	Ant.								Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.
CONTINUATION OF EXISTING MANAGEMENT (continued)																												
Continue Existing Improved Management (sub total)	39,538	2,734	5,530	47,802	6,332	1,233						Cat.	1,223	4,447	4,429	1,250	447	0	0	5,338	1,600	612	15	0	5,486	1,657	774	15
Rest Rotation (sub total)	12,008	1,714	1,430	15,152	1,677	588						Cat.	175	552	1,201	627	104	0	0	1,224	921	105	15	0	1,291	921	105	15
Hoy Mountain (Spring, Summer, Fall Grazing)	3,550	430	1,430	5,410	637	144	5/16	10/31	S,W	S,W	none	Cat.	175	552	529	124	104	0	0	552	124	105	0	0	619 ⁱ	124	105	0
Red Creek (Spring Grazing)	8,458	1,284	0	9,742	1,040	444	4/6	6/5	S,W	none	none	Cat.	0 ^j	0 ^j	672	503	0	0	0	672 ^g	797	0	15	0	672 ^g	797	0	15
Deferred Rotation (sub total)	15,430	0	2,040	17,470	1,906	453						Cat.	398	1,446	1,021	460	186	0	0	1,579	506	274	0	0	1,637	552	361	0
Ory Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)	15,430	0	2,040	17,470	1,906	453	5/6	10/28	S,W	W	none	Cat.	398	1,446	1,021	460	186	0	0	1,579	506	274	0	0	1,637	552	361	0
Deferred Rotation and Rest Rotation (sub total)	12,100	1,020	2,060	15,180	2,749	192						Cat.	650	2,449	2,207	163	157	0	0	2,535	173	233	0	0	2,558	184	308	0
Ruple Cabin (Spring, Summer Grazing)	12,100	1,020	2,060	15,180	2,749	192	5/16	9/15	S,W	S,W	none	Cat.	650	2,449	2,207	163	157	0	0	2,535	173	233	0	0	2,558 ⁱ	184	308	0
IMPLEMENT IMPROVED GRAZING MANAGEMENT (total)	115,568	11,369	45,061	171,998	14,962	4,991						Cat. Shp.	3,073	9,909	7,870	4,673	1,731	330	2,813	8,747	5,238	2,823	332	2,417	8,985	5,796	3,914	334
Spring, Summer, and Fall, with Periodic Spring Deferment (sub total)	103,788	9,769	35,771	149,328	11,146	4,621						Cat.	3,073	7,873	6,500	4,174	1,635	330	0	8,747	4,408	2,280	332	0	8,985	4,643	2,917	334
Clay Basin-Antelope Flat-Goslin Mountain ^h	28,302	2,710	2,797	33,809	3,265	1,650	4/16	11/30	S,W	S,W	S,W	Cat.	550	2,905	2,612	1,405	290	293	0	2,916	1,411	295	293	0	3,231	1,416	301	293
Gadson	990	40	2,000	3,030	330	10	5/10	10/31	S	none	none	Cat.	103	60	58	13	0	0	0	193	36	111	0	0	93	58	222	0
Hatch Cove	2,970	290	1,175	4,435	531	111	5/16	10/31	S,W	S	none	Cat.	70	281	162	124	13	0	0	393	150	99	0	0	334	176	185	0
Hoy Flat	10,090	0	1,500	11,590	425	327	5/1	10/31	S,W	W	none	Cat.	117	315	51	364	37	0	0	333	376	43	0	0	357	388	49	0
Jackson Draw-Crouse Canyon-Ory Hollow	8,812	1,940	6,669	17,421	1,190	514	5/10	10/27	S,W	S,W	none	Cat.	500	980	892	511	211	0	0	981	511	212	0	0	1,099	512	212	0
Little Hole	7,184	511	630	8,325	710	651	5/16	10/15	S,W	S,W	none	Cat.	65	330	324	532	384	0	0	388	573	400	0	0	401	615	416	0
Offield Mountain	6,930	0	1,540	8,470	330	250	5/11	10/31	S,W	S,W	none	Cat.	117	255	216	275	37	0	0	262	278	40	0	0	288	283	42	0
Pot Creek	1,660	0	1,550	3,210	140	51	5/18	10/17	S,W	S,W	none	Cat.	125	107	90	48	32	0	0	107	50	34	0	0	121	50	34	0
School Bus	1,480	0	660	2,140	270	23	5/16	10/31	S	S	none	Cat.	50	180	180	22	13	0	0	219	32	42	0	0	207	42	71	0
Sears Canyon-Marshall Draw	10,400	1,330	3,360	15,090	1,011	454	5/16	10/15	S,W	S,W	none	Cat.	275	561	360	426	216	0	0	692	465	308	0	0	662	505	399	0
Serviceberry Spring	1,930	0	1,930	3,860	233	32	5/16	10/31	S	S	none	Cat.	108	113	113	34	13	0	0	165	43	57	0	0	136	52	100	0
Shiner	1,780	0	2,810	4,590	222	131	5/16	10/25	S,W	W	none	Cat.	200	177	167	137	37	0	0	177	138	38	0	0	199	138	38	0
Warren Draw	7,270	400	5,440	13,110	785	180	5/01	10/31	S,W	S,W	none	Cat.	200	375	73	137	192	0	0	505	154	306	0	0	453	171	419	0
Willow Creek	13,990	2,548	3,710	20,248	1,704	237	5/16	9/30	S,W	S,W	S,W	Cat.	503	1,234	1,202	146	160	37	0	1,416	191	295	39	0	1,404	237	429	41

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)													
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e			Initial					Long Term (20th Year)				
							Livestock		Big Game			Kind	No.	AUMs Pref.	AUMs Actual				Livestock		Big Game			Livestock		Big Game		
	From	to	Deer	Elk	Ant.	Deer	Elk	Ant.	Sheep	Cattle	Deer					Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.						
	P.L.	St.	Prvt.	Total	Inv.	Other										Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.
IMPLEMENT IMPROVED GRAZING MANAGEMENT (continued)																												
Spring and Fall, With Periodic Spring Deferment (sub total)	11,780	1,600	9,290	22,670	3,816	370						Shp.	7,023	2,036	1,370	499	96	0	2,813	0	830	543	0	2,417	0	1,153	997	0
Bealer Basin-Diamond Gulch-Diamond Spring	5,650	1,600	4,700	11,950	2,200	154	5/1 9/16	6/30 11/30	S,W	S,W	none	Shp.	3,455	1,120	761	246	0	0	1,614	0	419	321	0	1,340	0	585	649	0
Cooper Draw	2,480	0	840	3,320	734	46	5/1 9/6	6/30 11/15	S	S,W	none	Shp.	568	344	164	73	0	0	525	0	186	69	0	417	0	298	138	0
Oavis Draw-Crouse Reservoir-Lambson	3,650	0	3,750	7,400	882	170	5/6 9/1	7/5 11/5	S	S,W	none	Shp.	3,000	572	445	180	96	0	674	0	225	153	0	660	0	270	210	0
GRAND TOTAL	190,536	18,749	73,511 ^l	282,796	25,993	8,350						Shp.	17,078	15,901 ^m	13,952	8,070	2,633	355	3,655	15,788	9,684	4,838	378	3,259	16,174	10,299	6,091	380
												Cat.	5,068															

^aP.L. = public land; St. = state land (land grant sections); Prvt. = private or former private land purchased by wildlife agencies.

^bInv. = useable livestock forage identified in BLM surveys of 1958 or 1976; Other = additional forage known to be used by big game, based on actual big game use and fecal analysis and inventoried forage not useable for livestock.

^cSeason of Use, Big Game S - Summer (May 15 to October 15), W - Winter (October 16 to May 14).

^dAUMs Pref. = AUMs Preference (10 year permit), AUMs Actual = 5 year average actual use.

^eEstimates of current use by big game were made by BLM personnel based on Utah Division of Wildlife Resource's herd management unit figures.

^fNonrenewable permit up to 1,000 AUMs additional to the preference allocation.

^gAllocated for use under non-renewable permits.

^hThis allotment includes National Forest Lands not listed here, but permitted on a percent basis.

ⁱAllowance made for sage control projects.

^jTemporary annual permit up to 672 AUMs additonal.

^kThis allotment includes National Park Lands not listed here, but permitted on a percent basis.

^lIncludes 3,581 acres of former private land which has been purchased by wildlife agencies.

^mDoes not include non-renewable permit up to 1,672 AUMs which are permitted on an annual basis.

APPENDIX I-4
Estimation and Allocation of Forage Production

A. Estimation of Forage Production

The estimated forage production shown in Table I-4 is the sum of estimated livestock forage production and estimated big game forage production.

1) Livestock Forage Production was estimated by the ocular reconnaissance method (BLM Manual 4412.11A).

Forage inventories were completed in 1958 on 71,525 acres of public land in the Bridgeport, Clay Basin-Antelope Flat-Goslin Mountain, Red Creek and Taylor Flat-Watson allotments. The remaining 119,011 acres of public land within the other 35 allotments were inventoried in 1976. The following procedures were used to determine the present and potential livestock grazing capacity in the Three Corners Planning Unit.

The inventory consisted of two phases: data collection and compilation of data. In order to complete the data collection phase, the surveyed area was first divided into vegetative subtypes (relatively homogenous groups of plants). Photo interpretation was used to outline the more obvious vegetative subtypes on aerial photographs. These delineations were verified and refined during the data gathering process. A write-up area was delineated for each vegetative subtype by allotment.

The next phase was data collection within the various write-up areas. The Ocular Reconnaissance Inventory Method required measurement or estimation of vegetative density (amount of cover) and composition of the various species within each write-up area. To get a reasonably accurate sample, the data collection team first established the location of one or more sites within the write-up area which reasonably represented the vegetative characteristics of the write-up area.

A 100-point transect was then established and "read." At each point on the transect, the observer determined if a "hit" was made on a plant. If so, the species was recorded and a determination was made whether the plant was available to grazing animals. The number of vegetation "hits" was then translated directly into density, (percent vegetation cover), e.g., 25 hits equals 25 percent density, and recorded on Form 4412-1 (see attached Example #1). The percentage of hits on any particular species was divided by the total hits and that figure became the percentage composition, e.g., 20 hits on plant A divided by 100 then multiplied by 100 equals 20 percent composition of plant A. As inventory team members became experienced, estimates were made on the percent composition of individual plant species instead of using 100 hits. This process was repeated for each of the write-up areas in the Three Corners area.

A number of other observations were also made in each write-up area such as livestock forage condition, erosion conditions, range useability, percent slope, elevation, and exposure.

The second phase of determining grazing capacity involved compilation. The first step in determining grazing capacity was to multiply the composition of each species by the Proper Use Factor (PUF). A PUF represents the percent of a plant's current year's growth that can be consumed by grazing animals without causing damage to the plant or a decline in range condition. Proper Use Factors varied depending on the phenology of the plant, type of grazing animal, and the season when grazing occurred.

U.S. DEPT. OF THE INTERIOR
BUREAU OF LAND MANAGEMENTWriteup No.
BB 295Date
7/21/76

Aerial Photo No.

FORAGE SURVEY TYPE WRITEUP
(OCULAR RECONNAISSANCE METHOD) School Bus

Examiner		KIND OF GRAZING ANIMAL *		SEASON OF USE		SECTIONS		TWP.	RGE.	MER.
Type Acne Poce Agsp		Cattle		Summer		6		2S	25E	SLM
Ac/AUM		Big Game				1		2S	25E	SLM
SPECIES	TOTAL ALLOWABLE PUF	% COMPOSITION	CATTLE PUF	COMP. X C PUF	SHEEP PUF	COMP. X S PUF	DEER PUF	COMP. X D PUF	PUF	COMP. X — PUF
GRASSES	Pose	20	50	0.1	40	0.08				
	Agsp	10	50	0.05	40	0.04				
	Sihy	tr	--		--					
	Orhy	tr	--		--					
	Brte	tr	--		--					
	Kocr	tr	--		--					
FORBS	SUBTOTAL	30								
	Phlox									
	Sedum									
	Core	5	5	0.0025	25	0.0125				
	Aster									
SHRUBS	SUBTOTAL	5								
	Eula	7	50	0.035	50	0.035	0			
	Arno	42	5	0.021	40	0.168	25	105		
	Amal	4	10	0.004	30	0.012	50	020		
	Artr	5	5	0.0025	25	0.0125	15	0075		
	Cemo	3	10	0.003	15	0.0045	25	0075		
	Symp	2	10	0.002	20	0.004	5	001		
SHRUBS	Gute	1	5	0.0005	20	0.002	0			
	Cele	1	10	0.001	30	0.003	15	0015		
SHRUBS	SUBTOTAL	65								
	TOTALS	100		0.2215		0.3735		.1425		

$$\text{Av C PUF } .2215 \times \text{Av Den } 20 = \text{FAF } .0443 \times 100\% \text{ Util} = \text{Net FAF } .0443; \text{FAR } .187 \div \text{Net FAF } .0443 = 4.2 \text{ Ac/AUM}$$

$$\text{Av S PUF } .3735 \times \text{Av Den } 20 = \text{FAF } .0747 \times 100\% \text{ Util} = \text{Net FAF } .0747; \text{FAR } .187 \div \text{Net FAF } .0747 = 2.5 \text{ Ac/AUM}$$

$$\text{Av D PUF } \times \text{Av Den } = \text{FAF } \times \% \text{ Util} = \text{Net FAF } ; \text{FAR } \div \text{Net FAF } = \text{Ac/AUM}$$

$$\text{Av BG PUF } .1425 \times \text{Av Den } 20 = \text{FAF } .0285 \times 100\% \text{ Util} = \text{Net FAF } .0285; \text{FAR } .187 \div \text{Net FAF } .0285 = 6.6 \text{ Ac/AUM}$$

$$\text{Total Net FAF } ; \text{FAR } \div \text{Net FAF } = \text{Ac/AUM}$$

* Livestock and major game species. (Other game species making inappreciable use are:

EXAMPLE 1

APPENDIX I-4 (continued)

The products of multiplying each species' composition by the appropriate PUF were then added. This sum was multiplied by the average vegetative density (percent vegetative cover) to determine the forage acre factor (FAF). The forage acre factor represents the percent of the total area that is covered with usable forage in the write-up area, i.e., FAF of 3.9 means that 3.9 percent of the write-up area is covered with useable forage.

The next step involved multiplying the FAF by a utilization factor. The utilization factor is the percent of the area useable by a particular kind of livestock. The percent utilization factor was 100 percent, since unuseable acres were not included in the total acreage of the write-up areas. The product of this multiplication (FAF x Utilization Factor = Net FAF) is the Net Forage Acre Factor.

Following this process, the Net Forage Acre Factor was divided by the Forage Acre Requirement (FAR). The FAR is that portion of an acre covered with sufficient forage to sustain one cow and calf or their equivalent for 1 month.

The result of this division process is the grazing capacity of the write-up area expressed in acres per AUM, i.e., the number of acres required to produce one AUM. By dividing this figure into the number of acres in the vegetative subtype (unuseable acres not included), the number of AUMs available was obtained (Form 4412-1). This process was repeated for each of the write-up areas. The result was the total number of AUMs available for livestock grazing.

2) Big Game Forage Production was calculated by estimating total present big game use and dietary overlap of big game and livestock. The total number of deer, elk, and antelope AUMs presently used were determined by multiplying estimated big game populations (see Appendix I-7) by the length of the season of use, i.e., 7 months for winter and 5 months for summer. Deer, elk, and antelope AUMs were converted to livestock equivalents according to the Forage Consumption Equivalent Ratios devised by Rasmusson, et al., 1941 and shown on Table 1:

TABLE 1
Big Game AUMs Per Livestock AUM

Big Game Species		
Deer	Elk	Antelope
5.82	1.88	9.62

The number of livestock AUMs (those inventoried by ocular reconnaissance) used by big game at present was estimated for each grazing allotment by multiplying total big game forage consumption (AUMs) by the percent of dietary overlap between big game species and kind of livestock on the allotment.

Dietary overlap percentages were determined by Colorado State University from livestock and big game fecal samples that were collected on the planning unit. Dietary overlap differs with area of consideration and season of use as shown on Table 2:

APPENDIX I-4 (continued)

Table 2

Percent of Dietary Overlap

Big Game Species	Browns Park Area		Diamond Mountain Area	
	Kind of Livestock			
	Cattle	Sheep	Cattle	Sheep
Deer				
Summer	0.06	Not applicable	0.19	0.23
Winter	0.12	to this area	0.12	0.40
Elk				
Summer	0.59		0.60	0.59
Winter	0.54		0.69	0.22
Antelope				
Summer	0.04		Not applicable to this area	
Winter	0.09			

Source: Colorado State University.

The number of AUMs used only by big game (noncompetitive AUMs) was determined by subtracting the number of livestock (inventoried) AUMs used by big game from the total AUMs presently used by big game. The number of AUMs used only by big game were assumed to be the big game forage production.

3) Example Calculation

The following is an example of the methodology described above.

School Bus Allotment: Cattle Allotment in the Diamond Mountain Area.

a) Determination of Present Total Livestock Equivalent AUMS of Big Game Use.

Species of Big Game	Estimated Populations	Length of Season of Use		Big Game AUMs Used At Present	Forage Consumption Equivalent Ratio (Table I)		Total Livestock Equivalent AUMs use
Deer	25	X 5 (summer)	=	125	÷ 5.82	=	22
Elk	5	X 5	=	25	÷ 1.88	=	13

APPENDIX I-4 (continued)

b) Determination of Number of Livestock AUMs Used by Big Game

	Total AUMs Used at Present (From Step a Above)	X	Dietary Overlap (Table 1)	=	Livestock AUMs Presently Used by Big Game
Deer	22	X	0.19	=	4
Elk	13	X	0.60	=	8

c. Determination of Number of AUMs Used Exclusively by Big Game (Assumed Big Game Forage Production of noncompetitive AUMs)

	Total AUMs Used (Step a)	-	Livestock AUMs used At Present (Step b)	=	AUMs Used Exclusively by Big Game (Big Game Forage Production)
Deer	22	-	4	=	18
Elk	13	-	8	=	<u>5</u>
			Total		23

d) Estimated Forage Production

Livestock Forage Production (From Occular Reconnaissance Inventory)	+	Big Game Forage Production (c Above)	=	Estimated Forage Production
270	+	23	=	293 AUMs

B. Allocation of Estimated Forage Production

The allocation of forage occurred in two phases. First, in all allotments livestock were allocated a minimum of their present grazing preference and big game were allocated the number of AUMs that they are presently using. Second, on the allotments listed in Table 3, 50 percent of the forage production presently unused by livestock or big game would initially be allocated to livestock and 50 percent to big game. On the remaining allotments where existing management would continue or where very little additional forage was available, 100 percent of the unused forage production would be allocated to big game.

APPENDIX I-4 (continued)

TABLE 3

Allotments With Increased Allocation to Livestock

Bealer Basin-Diamond Gulch-Diamond Spring	Little Hole
Clay Basin-Antelope Flat-Goslin Mountain	Mames Hole-Bear Hollow
Cooper Draw	Offield Mountain
Davis Draw-Crouse Reservoir-Lambson	Pot Creek
Dry Creek-South Pot Creek-Wild Mountain	School Bus
Gadson	Sears Canyon-Marshall Draw
Hatch Cove	Serviceberry
Hoy Flat	Shiner
Hoy Mountain	Warren Draw
Jackson Draw-Crouse Canyon-Dry Hollow	Willow Creek

Source: Three Corners Planning Documents.

On the allotments where the livestock allocation would increase initially, neither livestock nor big game would use all of the forage allocated to them under the initial level. Within 5 years, intensive management systems with additional fencing would make it possible for livestock to use all of the forage allocated to them. It is assumed that over a 20 year period, big game populations would expand to use all of the presently unused AUMs and that sufficient forage will be produced to allow a 10 percent increase in livestock forage production which would then be allocated to livestock.

After 5 years, more of the presently unused AUMs would be allocated to big game as populations increase until, at the end of the 20 year period, all of the presently unused AUMs would be allocated to big game.

Since the rate of increase in big game populations is unknown, the assumed allocation of forage for the 1st and 20th years after implementation is shown on Appendix I-3 for analysis purposes.

Any unused AUMs allocated to big game were apportioned to deer, elk, and antelope according to the percent of total forage use that would be made by each species with the optimum population mix for the allotment. Optimum populations are the highest numbers of deer, elk, and antelope that could co-exist on an allotment in the absense of livestock and without competing for the available inventoried forage. This species mix was determined by applying the highest proper use factor of the big game species by season to the forage species listed for each allotment on the ocular reconnaissance forage inventories. The allocation to big game species shown in Appendix I-4 is not an attempt to control big game populations, but shows the mix of species that the forage could support.

The following is an example of the methodology described above.

APPENDIX I-4 (continued)

School Bus Allotment

Estimated Forage Production	=	Present Livestock Grazing Preference	+	Present Big Game Use	+	Present Production Above Livestock Grazing Preference and Big Game Use (Unused AUMs)
293	=	180	+	35 (22 AUMs deer + 13 AUMs elk)	+	78

1) Initial (1st year) Allocation (50 percent of unused to livestock and 50 percent to big game). a) Livestock Allocation = Present Grazing Preference + 50 percent of Unused

$$219 = 180 + 39 = (.50 \times 78)$$

b) Big Game Allocation = Present Use + Optimum Percent of Unused

$$\begin{aligned} \text{Deer } 32 \text{ AUMs} &= \text{Deer } 22 \text{ AUMs} + 10 \text{ AUMs (26 percent of 39)} \\ \text{Elk } 42 \text{ AUMs} &= \text{Elk } 13 \text{ AUMs} + 29 \text{ (74 percent of 39)} \end{aligned}$$

Note: Two hundred and nineteen AUMs would be allocated initially, but only 180 would be preference license, 39 would be permitted on a temporary non-renewable (annual) bases if BLM determines the forage is available. Big game would only be using approximately what they are at present.

2) 20th Year Allocation

a)	Livestock Allocation =	Present Livestock Grazing Preference	+	10 Percent of the Inventoried AUMs Resulting From Improved Management
	207	=	180 AUMs	+ 27

Note: The 27 AUMs predicted to result from improved management would be permitted on a temporary non-renewable basis until studies varify the increased production.

b)

Big Game Allocation	=	Present Big Game Use	+	Optimum Percent of Unused AUMs
Deer 42	=	22	+	20 (26 percent of 79)
Elk 71	=	13	+	58 (74 percent of 79)

APPENDIX I-4 (concluded)

Kind of Animal	Present Use	Allocations	
		Initial	20th Year
Livestock	180	219	207
Big Game			
Deer	22	32	42
Elk	13	42	71

APPENDIX I-5
Rationale For Grazing and Resting Treatments for Various Seasons

No Livestock Grazing

Livestock Grazing Period	None	To provide all forage to big game.
Period of rest from live-stock grazing	Yearlong	To improve vigor of all plant species. To improve cover and litter accumulation. To allow for natural growth and reproduction.

Allotment-Wide Grazing on Big Game Winter Ranges

Livestock Grazing Period	Spring	To provide high-quality livestock forage. To reduce quantity of grass. To reduce livestock use on browse.
Period of Rest from Live-stock Grazing	Summer, Fall, Winter	To provide high quality big game winter forage. To maintain vigor of grass. To allow maximum production of browse.

Allotment-Wide Grazing on Mountain Ranges

Livestock Grazing Period	Spring-Summer	To provide high-quality and quantity of livestock forage.
	Spring-Summer-Fall	To maintain existing forage condition and trend.
	Spring-Fall	
Period of Rest from Live-stock Grazing	Winter with some summer and fall.	To provide spring-summer-fall big game forage.

Rest Rotation and Deferred Rotation on Big Game Winter Range

Livestock Grazing Period	Spring and early Summer	To provide high quality livestock forage. To reduce quantity of grass. To reduce livestock use on browse.
Period of Rest from Livestock Grazing	Summer, Fall, Winter	To provide high quality big game forage. To maintain vigor of grass. To allow maximum production of browse.
	Spring	To improve vigor of grass.

Rest Rotation and Deferred Rotation on Mountain Ranges

Livestock Grazing Period	Spring	To provide high quality livestock forage. To improve vigor of browse.
	Summer	To provide livestock forage. To allow grass to replenish root reserve To allow maximum plant production.
	Fall	To provide livestock forage. To promote seedling establishment by livestock trampling seed into soil.
Period of Rest from Live-stock Grazing	Spring	To improve vigor of plants by allowing grass to replenish root reserves. To allow forb to complete flowering.
	Spring-Summer	To allow plants to produce seed. To increase litter accumulation.
	Fall	To protect desirable browse from live-stock use.

APPENDIX I-6

Estimated Developments Required to Implement the Proposed Action

Allotment	Proposed Developments	Proposed Sagebrush Control
<u>CONTINUATION OF EXISTING MANAGEMENT</u>		
<u>No Livestock Grazing</u>		
Rye Grass	None	None
<u>Continuation of Allotment-Wide Grazing</u>		
<u>Spring (April and May only)</u>		
Bridgeport	1 water pipeline (1.50 mi.) 3 water troughs 1 storage tank	None
Taylor Flat-Watson	1 spring developed	None
<u>Spring and Fall (Begin in May)</u>		
Bowery Spring	None	None
Gadsen Draw-Gerber Spring	None	None
Highway	None	None
McKee Spring	None	None
Natural Lake	None	None
Smokem-Up	None	None
<u>Spring-Summer-Fall</u> (Begin in May and June)		
Bates Spring	None	None
Beaver Dam	None	None
Blair Basin	None	None
East Cow	None	None
Log Cabin	None	None

APPENDIX I-6 (continued)

Allotment	Proposed Developments	Proposed Sagebrush Control
Mail Draw	None	None
Mame's Hole-Bear Hollow	None	None
<u>Spring-Summer (Begin in June)</u>		
Cove	None	None
West Cow	None	None
<u>Continue Existing Improved Management</u>		
<u>Rest Rotation</u>		
Hoy Mountain	None	480 ac. of sagebrush spraying
Red Creek	None	None
<u>Deferred Rotation</u>		
Dry Creek- So Pot Creek- Wild Mountain	1 water pipeline (2 mi) 4 water troughs 1 storage tank	None
<u>Rest Rotation and Deferred Rotation</u>		
Ruple Cabin	2 water pipelines (3 mi) 6 water troughs 2 storage tanks	780 ac. of sagebrush spraying
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>		
<u>Spring, Summer, and Fall, With Periodic Spring Deferment</u>		
Clay Basin- Antelope Flat- Goslin Mountain	1 pipeline (6.5 mi) 13 water troughs 1 storage tank	None
Gadson	2 miles fence	None
Hatch Cove	1 spring developed 1 mile fence	None
Hoy Flat	1 spring developed 0.5 mi. fence	None

APPENDIX I-6 (concluded)

Allotment	Proposed Developments	Proposed Sagebrush Control
Jackson Draw- Crouse Canyon- Dry Hollow	None	None
Little Hole	2 springs developed 2 miles fence (riparian) 2 miles fence	None
Offield Mountain	1 spring developed 2 miles fence	None
Pot Creek	2 miles fence	None
School Bus	1 spring developed 2 miles fence	None
Sears Canyon-Marshall Draw	1 spring developed 1.5 mi. fence (riparian)	None
Serviceberry Spring	2 miles fence	None
Shiner	3 miles fence	None
Warren Draw	2 springs developed 4 miles fence	None
Willow Creek	2 springs developed 1 reservoir 5 miles fence	None
<u>Spring and Fall, With Periodic Spring Deferment</u>		
Bealer Basin Diamond Gulch Diamond Spring	1 reservoir	None
Cooper Draw	1 reservoir 2 miles fence	None
Davis Draw- Crouse Reser.- Lambson	1 spring developed 4 water troughs 1 water pipeline (2 mi) 1 storage tank	400 ac. of sagebrush chaining

APPENDIX I-7

Existing Developments

Allotment	Project	BLM Cost	Private Cost	Comments
Bridgeport	0431 - Browns Park Field Study Plot	2,135.00	-0-	1 mile - 4 strand barbed wire
Bridgeport and Willow Creek	0159 - Willow Creek Flat 0249 - Willow Creek Drift fence	175.00 442.25	-0- 140.00	12 feet long - 10 feet wide 1.25 miles barbed wire - 4 strand
Taylor Flat- Watson and Red Creek	0225 - Red Creek-Taylor Flat chaining 0116 - Taylor Flat Study Plot 4091 - So. Green River Fence 4103 - So. Green River Cattle- guard	35,000.00 1,000.00 5,948.00	-0- -0- -0-	Utah DWR - \$35,000.00 Total 4,800 acres. 5 acres exclusive - Utah DWR paid \$1,500.00 4.5 miles - 4 strand bared wire
Taylor Flat	4147 - Browns Park Cattleguards 0048 - Browns Park Taylor Flat trail reseeding	3,750.00 2,121.00	-0- -0-	3 - 16 foot cattleguards Utah DWR cost \$2,100.00 150 acres in Taylor Flat and 150 acres in Red Creek Flat were seeded.
Bowery Spring	4053 - Diamond Rim Corral	500.00	4,000.00	1.0 miles - Cedar and Lodgepole pine fence.
Gadson Draw- Gerber Spring	None			
Highway	None			
McKee Spring and Bates Spring	0047 - McKeachnie Fence	-0-	1,724.00	2.75 miles of barbed wire
Natural Lake	None			
Smokem-Up	None			
Bates Spring	(See McKee Spring)			
Beaver Dam	None			
Blair Basin	None			

APPENDIX I-7 (continued)

Allotment	Project	BLM Cost	Private Cost	Comments
East Cow and West Cow	4075 - Cow Hollow Fence	-0-	300.00	1.1 miles barbed wire
Log Cabin	None			
Mail Draw and Gadson	4150 - Mail Draw Division Fence	18,000.00	-0-	Net wire - 2 strand barbed wire on top
Mame's Hole-Bear Hollow	None			
Cove	None			
West Cow	None (See East Cow)			
Hoy Mountain	0310 - Hoy Mtn. Fence	600.00	1,020.00	1.06 miles net wire with 1 strand barbed wire
	4133 - Hoy Mtn. Spring Develop.	300.00	-0-	1 trough - 250 feet pipeline
	4009 - Hoy Mtn. Spraying	1,260.00	-0-	Total 600 acres.
	4061 - Cove Reservoir	1,300.00	-0-	
	4132 - Hoy Mtn. Spring Development #2	600.00	-0-	2 springs developed 2 troughs - 200 feet pipeline.
Hoy Mountain and Dry Creek	4056 - State line fence	788.00	600.00	1.5 miles 4 strand barbed wire.
Red Creek (See Taylor Flat-Watson)	4045 - Home Mtn. Water Develop.	1,000.00	-0-	Headbox with pipeline to trough.
	4054 - Red Creek Flat Pipeline	5,782.00	-0-	2 miles pipeline - 2-3 troughs.
	4107 - Red Creek Water System Extension	1,000.00	-0-	1.5 miles pipeline - 2 troughs.
	0044 - Allen Drift Fence Red Creek Flat	-0-	1,500.00	1.5 miles barbed wire
	0114 - Study Plot	1,500.00	-0-	\$1,500.00 UDWR 1.0 miles net wire fence
	3511 - Red Creek Fence	7,876.00	-0-	5.0 miles - 4 strand barbed wire
	4041 - Red Creek Flat Fence	3,045.00	-0-	3.0 miles - 4 strand barbed wire.
	4136 - Red Creek Flat Cattleguards	4,200.00	-0-	16 foot cattleguard - 2
Red Creek and Clay Basin-Antelope Flat	0411 - Clay Basin Conservation control fence 24,47"	400.00	-0-	10.73 miles 6 strand barbed wire

APPENDIX I-7 (continued)

Allotment	Project	BLM Cost	Private Cost	Comments
Dry Creek - So. Pot Creek- Wild Mtn. and Offield Mtn.	107 - Pot Creek Division Fence			
Dry Creek- So. Pot Creek- Wild Mtn. and Sears Canyon- Marshall Draw	4088 - Ainge - Colo. - Ut. State Line fence	808.00	770.00	1.8 miles - 4 strand barbed wire.
Dry Creek-So. Pot Creek- Wild Mtn. (Dry Creek see Hoy Mtn.)	0390 - Utah-Colorado State Line fence	468.00	375.00	2.0 miles - 4 strand barbed wire.
	C1--563 - Big Three Sec 4 Res.	-0-	300.00	1 acre-foot capacity for 2 reservoirs.
	C1-4-564 - Monument Boundary Sec. 4 Reservoirs	-0-	625.00	2 reservoirs - 1 acre- foot capacity each.
	4116 - Wild Mtn. Division Fence	3,300.00	2,800.00	3.5 miles - 4 strand barbed wire
	4083 - Serviceberry Spring	1,500.00	100.00	Pipeline to round holding tank - spring fenced.
	4084 - Wild Mtn. Reservoir	4,500.00	750.00	3 stockwater reser.
	4134 - Siddoway Reservoir	1,500.00	-0-	
	4144 - Dripping Spring Development	300.00	-0-	1 trough - 50 foot pipeline.
	4085 - Renie Hall Spring	1,000.00	100.00	1 spring development
	C1-4-565 - Marshall Draw Sec. 4 Spring Development	-0-	250.00	3 springs - 10 troughs, 1 collection below reservoir.
Ruple Cabin and Hatch Cove	0085 - Wild Mtn. Conserv. control fence	534.00	360.00	0.75 miles - net wire with 1 strand of barb- ed wire on top.
Ruple Cabin and Hatch Cove and Cooper Draw	4018 - Anderson A.M.P. fence	2,400.00	1,200.00	2.5 miles - net wire with one strand barb- ed wire on top.
Ruple Cabin and Shiner	0318 - Wild Mountain fence	1,272.48	770.00	1.4 miles - net wire with one strand barb- ed wire on top.

APPENDIX I-7 (continued)

Allotment	Project	BLM Cost	Private Cost	Comments
Ruple Cabin and Bealer Basin and Diamond Gulch	0366 - Diamond Mtn. Res. Const.	840.23	1,352.00	4 reservoirs
Ruple Cabin	4064 - Tom Fence	914.00	600.00	1.6 miles - 4 strand barbed wire.
	4143 - Wild Mtn. Cattleguards	4,200.00	-0-	2 - 16 foot cattle- guards.
Ruple Cabin	0323 - Ruple Aerial Spraying	6,700.00	-0-	3,000 acres sprayed
	0329 - Wild Mtn. Res.	400.00	400.00	
Ruple Cabin	4063 - Anderson Reservoir	6,500.00	-0-	
Ruple Cabin	4081 - Bear springs	250.00	1,485.00	1 mile of pipeline - trough
Clay Basin-	0027 - Double Duck-Dry Wash Dam	-0-	305.90	Capacity 3 acre-feet.
Antelope Flat	-0102 - Keith Reservoir	300.00	-0-	3.03 acre feet cap.
Goslin Mtn.	0370 - Unit A. Res. Const	-0-	350.00	3 stock watering res.
	4059 - Antelope Flat Corral	50.00	500.00	1 mile - Lodgepole and Cedar Fence.
	3516 - Pigeon Spring Development	620.58	-0-	Holding pond below spring
	4121 - Goslin Mtn. Fence	400.00	11,880.00	6.0 miles 4 strand. no longer useable
	0004 - Goslin Mtn. Res. Sec. 4			3.2 mile barbed wire on top of net wire.
	0311 - Jones Hole Fence	5,040.00	2,200.00	3.2 mile barbed wire on top of net wire.
	0319 - Ruple Fence	2,109.00	1,760.00	
	0093 - J. R. Broadbent Res. Sec. 4 permit			no longer useable
	0088 - Antelope Flat Res. Sec. 4 permit			no longer useable
	4138 - Mountain Fuel Water trough	1,500.00	-0-	2 water troughs
	4149 - Clay Basin Spr. Develop.	3,607.00	-0-	2 troughs - 1-1,000 gal. water tank.
	0275 - Pigeon Canyon Exclosure	1,099.00	-0-	.5 mile net wire fence
	0413 - Clay Basin Big Game Study Plot	420.00	-0-	\$400.00 UDWR - 0.5 mile net wire fence
	4004 - Red Creek-Clay Basin Corral	3,900.00	-0-	0.2 mile cedar - lodge- pole fence
Gadson	(See Mail Draw-Gadson)			
Hatch Cove and Cooper Draw (See Ruple Cabin)	4079 - Hatch Reservoir	2,250.00	-0-	4 reservoirs in Hatch Grove, 5 in Cooper Draw.

APPENDIX I-7 (continued)

Allotment	Project	BLM Cost	Private Cost	Comments
School Bus and Hatch Cove Cooper Draw	4188 - School Bus - Hatch Grove division fence	20,000.00	40,000.00	net wire with 2 strands barbed wire on top.
Hoy Flat	C1-4-377 - Diamond Mtn. Sec. 4 Reservoir, Hoy Mtn. Sec. 4	-0-	1,500.00	3 earth filled stock- water dams
	C1-4-506 Pipeline	-0-	600.00	2,700 feet pipeline, 1 1,000 gal. tank
	4090 - Massey Drift Fence	-0-	900.00	.75 mile - 4 strand barbed wire.
Jackson Draw- Crouse Canyon- Dry Hollow	0063 - McCoy Spring Develop.	-0-	450.00	
	0065 - McCoy Well	-0-	750.00	
Jackson Draw- Crouse Canyon- Dry Hollow and Warren Draw	0029 - McCoy Conserv. Control Fence	530.00	300.00	.75 mile net and barbed wire.
Crouse Canyon	0060 - Leonard Boren drift fence	-0-	1,150.00	2.25 miles barbed wire.
Little Hole	4168 - Jackson Draw Fire Rehab.	3,800.00	-0-	230 acres reseeded
	4151 - Devils Hole Fence	1,696.00	-0-	1.0 miles 4 strand barbed wire fence.
	4145 - Little Hole Cattleguard	1,700.00	-0-	16 foot cattleguard
Offield Mtn.	C1-4-407 - Dry Creek Spring & Pipeline	-0-	575.00	Pipeline 1800 feet - 8' X 2' round tank
	C1-4-406 - Dry Creek Sec 4 Res.	-0-	200.00	1 res. - 100' length
Offield and Shiner (See Dry Creek- So. Pot Creek- Wild Mtn.)	4087 - Colo - Ute Drift Fence	409.96	455.00	1.0 miles 4 strand barbed wire
Pot Creek	None			
School Bus	(See Hatch Cove)			
Sears Canyon- Marshall Draw	(See South Pot Creek-Dry Creek-Wild Mtn.)			
Serviceberry Spring	None			

APPENDIX I-7 (concluded)

Allotment	Project	BLM Cost	Private Cost	Comments
Shiner (See Ruple Cabin and Offield Mtn.)	4089 - Bowen Cove Spring	-0-	250.00	1 mile pipeline 1 trough
	C1-4-408 - Dry Creek Fence Sec. 4 permit			no longer useable
Warren Draw (See Jackson Draw)	4148 - Browns Park Forb and browse seeding	7,000.00	-0-	
	0074 - McCoy Fence	-0-	1,381.00	1.5 miles - net wire
Willow Creek (see Bridge- port)	0006 - Clay Basin Springs	-0-	1,463.43	2 springs - water collected into 40' of deep trough
	0050 - White Rock Spr. Reconst.	181.16	224.00	water from spring to troughs
	4146 - Fish habitat develop.	6,000.00	-0-	20 log fish structures
	0230 - Utah-Wyoming Three Cor- ners Fence	6,011.40	4,645.80	8 miles - net wire with 2 strands barb- ed wire on top.
	0232 - Utah-Colorado Three Corners Fence	2,848.33	2,776.00	2 miles net wire with 2 strand barb- ed wire on top.
	0254 - Three Corners Cattle- guard contract	1,096.00	-0-	2 - 12' cattleguards.
Bealer Basin- Diamond Gulch- Diamond Spring	0337 - Boone Spring	400.00	350.00	100' of troughs set up to receive water
	0343 - Cottonwood Spring	213.21	235.20	100' of troughs put in
	0351 - Gurr Spring	1,043.30	188.88	headby collects water sent to 120' of trough
	0126 - Shiner Bros. Bennion fence	-0-	405.00	1.5 miles net wire with 2 strands of barbed wire on top.
	0120 - Diamond Mtn. Holding Pasture	1,206.01	1,389.00	.75 miles net wire fence with 2 strands barbed wire on top.
Cooper Draw	(See Hatch Cove)			
Davis Draw-Crouse Reservoir-Lambson	None			

APPENDIX II-1
Rating of Soils as to Percent Probability
of Success for Rangeland Seeding^a

The percent probability of success for rangeland seeding is intended to be a relative rating of successful seeding establishments that might be expected during a given period of years.

In addition, the number of plant species adapted to the soil and its properties decrease with decreasing soil suitability. For example, successful seedings can be expected in 7 or more years out of 10, and any one of several different plants may be successfully seeded. Successful seedings will result in about 5 years out of 10, and only the most drought tolerant plants can be seeded. A soil rated with less than 30 percent probability of success should be considered for seeding only under emergency circumstances, such as after a fire to keep soil erosion losses to a minimum, because seeding success may only be as high as 3 years out of 10, but normally is even less successful.

Also considered in rating the percent probability of success for rangeland seeding are machinery limitations that may result from soil properties, such as the presents of stones, rock outcrops, and excessive slope.

The percent probability of success will be rated 50-70 percent, 30-50 percent, or less than 30 percent by its most limiting property as listed in the following table, even if only one such property exists. It must be pointed out that the criteria included in the table are not independent variables that can be applied directly to all soil properties and qualities as they occur in the landscape. Interactions among soil properties listed in the guide may be great enough to require a change in some of the soils suitability ratings. Several interactions, identified by footnote, have an overriding property or quality that render the soil more or less suitable than would be expected unless they were taken into account. The table provides for rating different kinds of soil into four degrees of success. Kinds of soil having the same soil name and occurring in the same defined SCS Major Land Resource Area (MLRA) should have the same rating.

Descriptions of mapping units consisting of phases of soil series, families, or subgroups include the soil properties and qualities used as criteria in rating a soil's percent probability of success for rangeland seeding. These are available in Soil Survey manuscripts or handbooks for areas being mapped. The properties and qualities can also be obtained by field examination by soil scientists in areas where the aforementioned documents are not available.

^aBureau of Land Management Utah State Office Instruction Memorandum No. 72-193 titled--Land Use Guides for Watershed Management.

APPENDIX II-1 (continued)

TABLE 1

Probability of Success of Rangeland Seeding

	Degrees of Success			
	Greater Than 70 percent	50-70 percent	30-50 percent	Less Than 30 percent
<u>Annual Precipitation</u>				
Thermic Soils (MAST > 59°F.)	>16" ^a	14-16" ^a	12-14" ^{a,b}	<12" ^b
Mesic and Frigid Soils (MAST < 59°F.)	>12" ^a	10-12" ^a	8-10" ^{a,b}	< 8" ^b
<u>Surface Texture</u> ^c	2, 3, and 4	5	1 ^d	1
<u>Coarse Fragments By Volume</u> ^e				
Gravel and Cobbles	<15%	15-30%	30-50%	>50%
Stones	<2%	2-10%	10-25%	>25%
<u>Root Zones</u> ^f	>40"	20-40" ^g	20-40" ^g	<20" ^h
<u>Depth to Sand and/or gravel</u>	>40"	20-40"	10-20" ⁱ	<10"
<u>Abrupt textural Boundary A-B</u>	>20"	10-20"	4-10"	< 4"
<u>Available Water Capacity</u> ^j				
Surface 7"	>1.0"	0.8-1.0"	0.6-0.8"	<0.6"
Useable Profile	>5.0"	3.5-5.0"	2.5-3.5"	<2.5"
<u>E.S.P. (Surface 7")</u>	<5% ^k	<5% ^k	5-15% ^l	>15%
<u>E C X 10³ at 25°C (Surface 7")</u>	<4 ^{m,n}	<4 ^{m,n}	< ⁿ	>4
<u>Slope Topography</u>	0-10%	10-20%	20-30%	>30% ^o
<u>Rock Outcrops (Surface Areas)</u>	<2%	2-10%	10-25%	>25%

APPENDIX II-1 (continued)

Footnotes to Percent Probability of Success Table

^aThe percent probability of success decreases to the next lower class when surface runoff is rapid and erosion hazard is high. Must be evaluated on the site.

^bThe percent probability of success increases to next higher class when the site is subjected to "run-in" or the aspect is north.

^cSurface texture with moderate or strong vesicular crusts (a slightly hard or harder surface horizon at least 1 inch thick with common or many, medium or coarse vesicular pores) rate as follows: fair when soil is in >16 inch precipitation zone (thermic soils) and >12" precipitation (mesic and frigid soils); poor when soil is in 14-16" and 10-12" precipitation zones respectively; and very poor when soil is in 12-14" and 8-10" precipitation zones and seeding is planned to be done by means other than deep furrow drill.

^dRate soils as very poor if in precipitation zones of <12", or for soils subject to severe wind erosion hazard (bare soils) in all precipitation zones.

^eCoarse fragment volume estimates are based on resultant volume after mixing the surface 7 inches.

^fRoot zone is the depth of soil that is penetrated or can be penetrated by plant roots. In this context the only root limiting layers are bedrock, both "hard" and "soft," and hardpans.

^gUse available water capacity criteria for the specific suitability rating if effective rooting depth is 20 to 40 inches.

^hRate soil poor if the available water capacity is >2.5", precipitation is >10", and slope is <30 percent.

ⁱIf the soil materials above the sand and/or gravel contain >15 percent gravel or cobbles or >2 percent stones, rate the soil very poor.

^jAvailable water capacity criteria is given for two independent factors: surface 7" and effective rooting depth. The former is computed on a weighted average basis as though the surface 7 inches were mixed, while the latter is computed for the soil profile, on a weighted average basis, to a depth of 5 feet, or to bedrock or hardpan whichever is shallower.

^kRate soil as poor if exchangeable sodium percentage (E.S.P.) is >15 percent within 10 inches.

^lRate soil as very poor if exchangeable sodium percentage (E.S.P.) is >15 within 10 inches.

^mRate soil as poor if electrical conductivity ($EC \times 10^3$ at 25°C) is 4 to 8 within 20 inches of the surface.

APPENDIX II-1 (concluded)

ⁿRate soil as very poor if $ECX10^3$ at 25°C is >8 within 20 inches.

^oSuitability rating is given under normal conditions. For mechanical seeding under emergency conditions, such as after fire to minimize excessive erosion losses, slopes up to 45 percent should be included and rated poor. Where >10 percent stones are present on these slopes, the soil should be rated as very poor.

APPENDIX II-2

Methodology for Determining Erosion Condition Classes

The soil surface factor (SSF), a computed number (from 0-100), is an expression of current erosion activity. Seven categories of surface features are considered in the examination of the area represented by each transect. Both wind and water erosion are considered in computing the SSF. These features are: soil movement, surface litter, surface rock, pedestalls, rills, flow patterns, and gullies. In the process of determining the SSF, the examiner must consider the features at the site where the data is collected as representative of the total area of the vegetation subtype in which the site is located.

Five erosion condition classes are used to depict current erosion activity through numerical values: stable (SSF 0-20), slight (21-40), moderate (41-60), critical (61-80), and severe (81-100). An example computation is shown on Figure 1.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTBy **Mr. David Moore** Date **Sept. 10, 1974**Location **WA 028**Transect **041312**Treatment affecting the SSF
None

DETERMINATION OF EROSION CONDITION CLASS

SOIL SURFACE FACTORS (SSF)

SOIL MOVEMENT *	No visual evidence of movement				Some movement of soil particles				Moderate movement of soil is visible and recent. Slight terracing generally less than 1" in height.				Occurs with each event. Soil and debris deposited against minor obstructions.				Subsoil exposed over much of area, may have embryonic dunes and wind scoured depressions			
	0	1	2	3	4	5	6	7	8					9	10	11	12	13	14	
SURFACE LITTER *	Accumulating in place				May show slight movement				Moderate movement is apparent, deposited against obstacles				Extreme movement apparent, large and numerous deposits against obstacles				Very little remaining (<i>use care on low productive sites</i>)			
	0	1	2	3	4	5	6	7	8					9	10	11	12	13	14	
SURFACE ROCK *	If present, the distribution of fragments show no movement caused by wind or water				If present, coarse fragments have a truncated appearance or spotty distribution caused by wind or water				If present, fragments have a poorly developed distribution pattern caused by wind or water				If present, surface rock or fragments exhibit same movement and accumulation of smaller fragments behind obstacles				If present, surface rock or fragments are dissected by rills and gullies or are already washed away			
	0	1	2	3	3	4	5	6	7	8					9	10	11	12	13	14
PEDESTALS *	No visual evidence of pedestalling				Slight pedestalling, in flow patterns				Small rock and plant pedestals occurring in flow patterns				Rocks and plants on pedestals generally evident, plant roots exposed				Most rocks and plants pedestalled and roots exposed			
	0	1	2	3	4	5	6	7	8	9					10	11	12	13	14	
FLOW PATTERNS *	No visual evidence of flow patterns				Deposition of particles may be in evidence				Well defined, small, and few with intermittent deposits				Flow patterns contain silt and sand deposits and alluvial fans				Flow patterns are numerous and readily noticeable. May have large barren fan deposits.			
	0	1	2	3	4	5	6	7	8	9					10	11	12	13	14	15
RILLS	No visual evidence of rills				Some rills in evidence at infrequent intervals over 10'				Rills 1/2" to 6" deep occur in exposed places at approximately 10' intervals				Rills 1/2" to 6" deep occur in exposed area at intervals of 5 to 10'				May be present at 3" to 6" deep at intervals less than 5'			
	0	1	2	3	4	5	6	7	8	9					10	11	12	13	14	
GULLIES	May be present in stable condition. Vegetation on channel bed and side slopes				A few gullies in evidence which show little bed or slope erosion. Some vegetation is present on slopes.				Gullies are well developed with active erosion along less than 10% of their length. Some vegetation may be present.				Gullies are numerous and well developed with active erosion along 10 to 50% of their lengths or a few well developed gullies with active erosion along more than 50% of their length				Sharply incised gullies cover most of the area and over 50% are actively eroding			
	0	1	2	3	4	5	6	7	8	9					10	11	12	13	14	15
SITUATION					TOTAL					Present SSF -- 36										

FIGURE 1

EXAMPLES

ITEM	EXAMPLE ONE			EXAMPLE TWO **			EXAMPLE THREE ***		
	POTENTIALLY PRESENT	IDENTIFIED FACTORS	POSSIBLE FACTOR	POTENTIALLY PRESENT	IDENTIFIED FACTORS	POSSIBLE FACTOR	POTENTIALLY PRESENT	IDENTIFIED FACTORS	POSSIBLE FACTOR
Soil Movement	Yes	8	14	Yes	8	14	Yes	8	14
Surface Litter	Yes	9	14	Yes	9	14	Yes	9	14
Surface Rock	Yes	7	14	No	—	—	No	—	—
Pedestalling	Yes	10	14	Yes	10	14	Yes	10	14
Rills	Yes	8	14	Yes	8	14	No	—	—
Flow Patterns	Yes	10	15	Yes	10	15	Yes	10	15
Gullies	Yes	6	15	No	—	—	No	—	—
TOTAL		58	100		45	71		37	57
Total SSF		$\frac{58}{100} \times 100 = 58$			$\frac{45}{71} \times 100 = 63$			$\frac{37}{57} \times 100 = 65$	

GENERAL INSTRUCTIONS

District prepares one (1) copy and files in district with particular study under consideration.

Do *not* include items in computations which are not potentially present.

Identify numerical factor that most nearly describes the conditions observed by circling the factor given for each logical item.

* *Wind and water are considered eroding agents when evaluating item*

** *A soil with no rocks in its profile and no probability of gullyng*

*** *A pumice soil area where no water erosion occurs*

SPECIFIC INSTRUCTIONS

Total all factors at bottom of page. Divide total identified factors by total possible factors for items considered and multiply by 100 in order to compute the SSF.

Situation – Describe situations being evaluated such as present, geologic, with mechanical treatment in effect for 10 years, under a 5 pasture livestock management system for last 8 years, etc.

Total – Total computed SSF.

FIGURE 1 (Concluded)

APPENDIX II-3
Planning Unit Water Supply and Consumptive Water Uses
By Livestock and Big Game

A. WATER YIELD

1. Runoff

Runoff in the planning unit is considered to be 1 inch per year (Hydrologic Atlas of Utah, 1968).

Therefore:

- a. 190,536 acres of public land X 1 inch/year = 190,536 acre inches of water per year
- b. 190,536 inches of water per year ÷ 12 inches = 15,878 acre-feet per year (ac-ft/yr) from public lands.

2. Springs and Wells

Of the diligence water rights from springs and wells on the planning unit, 85 ac.-ft/yr are adjudicated to BLM.

3. Stream Flow

The annual volume of streams (exclusive of the Green River) with diligence water rights adjudicated to BLM is 114,500 ac-ft/yr.

4. Total Annual Surface Water Supply on Public Lands (Exclusive of the Green River)

$$\begin{array}{rclclcl}
 15,878 \text{ ac-ft/yr} & + & 85 \text{ ac-ft/yr} & + & 114,500 \text{ ac-ft/yr} & = & 130,463 \text{ ac-ft/yr} \\
 (\text{Runoff}) & & (\text{Springs and Wells}) & & (\text{Stream Flow}) & & (\text{Surface Water Supply})
 \end{array}$$

B. LIVESTOCK AND BIG GAME CONSUMPTIVE WATER USE

1. Big Game Requirements

- a. Deer Requirement = 1 gallon/deer/day (Western U.S. Water Plan, 1974)
Therefore: 1 gal./day X 30 = 30 gallons/deer/Month

5.82 deer months = 1 Cow month or animal unit month (AUM) (Rasmusson, et al., 1962), therefore 5.82 X 30 gallons = 175 gallons/deer AUM.

- b. Antelope Requirement = 1 gallon/antelope/day (Western U.S. Water Plan)
Therefore: 1 gal./day X 30 = 30 gallons/antelope/month

9.62 antelope months = 1 cow month (AUM) (Rasmusson, et al., 1962), therefore 9.62 X 30 gallons = 289 gallons/antelope AUM.

APPENDIX II-3 (concluded)

- d. Elk Requirement = 4 gallons/elk/day (Western U.S. Water Plan).
Therefore: 4 gal./day X 30 = 120 gallons/elk/month

1.88 elk months = 1 cow month (AUM) (Rasmusson, et al., 1962),
therefore 1.88 X 120 gallon = 226 gallons/elk AUM.

2. Livestock Requirement = 300 gallons/AUM (Stoddard and Smith, 1955).

3. Total Consumptive Requirement

Estimated annual forage Requirements (Table 1-4)			Water Requirments in Gallons/AUM	=	Annual Consumptive Water Requirement in Gallons
a. Deer	8,070	X	175	=	1,412,250
b. Antelope	355	X	289	=	102,595
c. Elk	2,633	X	226	=	595,058
d. Livestock	17,573	X	300	=	<u>5,271,900</u>
Total Consumptive Use in Gallons					<u>7,381,803</u>

7,381,803 gallons consumptive ÷ 325,900 gallons/acre-foot = 22.65 ac.-ft/yr
requirement consumptive

4. Percent of Annual Surface Water Supply Use By Livestock and Big Game

22.65 acre-feet (Total Consumptive Use	÷	130,463 acre feet (Annual Surface Water Supply	X	100	=	0.017 % (Of the Annual Water Supply used by big game and livestock)
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UNITED STATES GOVERNMENT

*Memorandum*DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

B.L.M. - 100-4040			
Unit	Sub	Act	Dist
Project			
Admin			
Dev. & Recl.			
Recl. & Maint.			
Wild. & Fish.			
Water & Hydr.			

JUL 3 1978

Project Staff			
Admin			
Dev. & Recl.			
Recl. & Maint.			
Wild. & Fish.			
Water & Hydr.			

Date: May 14, 1978

To : District Manager, Vernal

FROM : Elizabeth Neese, Range Tech. (Botanist)

SUBJECT: Status Report: Endemic, Threatened And Endangered Plants
Of The Three-Corner Area

Recent (1978) collecting trips into the Three-Corners Area of Utah, Wyoming, and Colorado have yielded about 500 collections of vascular plants comprising over 200 species. Following are collection notes regarding species which are of particular interest. These are species which occur on various T & E lists, are narrow endemics, or represent new state records or range extensions.

ASTERACEAE

Parthenium liqulatum

Originally proposed as endangered (Federal Register 1975 and Welsh 1975) recent collections indicate that it is widespread on the Green River Shales of the Uintah Basin. A collection from Browns Park in the Three-Corners area is apparently the first collection from Daggett County. (Neese, 5563).

Townsendia mensana

Considered endemic, locally restricted, and possibly threatened by Welsh (1975). It has now been collected on Diamond Mountain rim as well as repeatedly in other locations in the Uintah Basin.

BORAGINACEAE

Cryptantha caespitosa

This is a southern Wyoming species now collected for the first time in Utah, where it is strictly edaphically limited to white tuffaceous deposits in the Browns Park area.

Cryptantha stricta

Listed as threatened (Federal Register, 1975), rare but not threatened by Welsh (1975). It has recently been collected in several localities in the Three-Corners area.

FABACEAE

Astragalus aretioides

This dwarf mat-forming milk vetch has been collected for the first time in Utah, on white tuffaceous deposits near Browns Park.

Astragalus kentrophyta var jessicae

The collection, identified by Dr. Stanley Welsh, represents a new state record and a significant range extension for this variety.

Odytropis besseyi var obnapiformis (= *O. obnapiformis*)

Proposed as endangered (Federal Register, 1975) and rare and local, possibly threatened by Welsh, 1975. Collected from two localities on white tuffaceous deposits near Browns Park.

SCROPHULARIACEAE

Penstemon arenicola

This is an obscure species of southern Wyoming and Moffat County, Colorado, apparently rarely collected in Utah. Collected in pinyon-juniper woodland near Browns Park.

Penstemon acaulis

Proposed as threatened (^{Federal} National Register 1975 and Welsh 1975). In addition to relocation of populations at previous collection sites near Manila, we have now collected this little mat-penstemon near Browns Park, where it is apparently very rare.

Botanizing of the Three-Corners area has been nearly non-existent previous to the last year or two, and much work remains before the flora is well understood. Most of the area is occupied by Artemesia Tridentata - dominated communities; secondary components of these big sage communities vary with edaphic and elevational differences. Common co-dominants include Stipa comata, Oryzopsis hymenoides, Agropyron spp., Poa spp., and Juniperus osteosperma. On Diamond Mountain plateau, where much of the land is privately owned, sagebrush communities have been partially replaced by cultivated, weedy, or adventive species.

Other well developed communities occur on heavy clay soils (Atriplex spp.), on shallow, rocky, upland soils (pinyon-juniper), at higher elevations (aspen woodland), and along stream courses (riparian). As is generally true, these common and widespread communities support few rare species and are not particularly rich in number of floristic elements. The rare plants of the area occur typically in harsh geographically and edaphically limited habitats.

It is to be expected that more rare plants will be discovered on these unique habitats as more extensive study of the Three-Corner area is made, and as summer and fall blooming species are collected and identified. Several curious collections presently await the necessary herbarium research for proper identification.

Elizabeth Heese
Range Technician (Botanist)

APPENDIX II-5
Methodology for Assigning Forage Condition Classes

Erosion condition classes and plant species classified as desirable, intermediate, and least desirable were used to determine forage condition. The following criteria were used in the plant classification process:

1. Desirable plants are those which are palatable, productive, and nutritious forage species, are often dominant under climax or near climax conditions, are long-lived, and have extensive root systems to aid in protecting the watershed against erosion. This category includes the important key forage species (grasses, forbs, browse, and shrubs) which are to be maintained or increased by intensive livestock management.
2. Intermediate plants are of secondary importance in the climax and are usually associated with, or indicators of, ecological successional stages. They replace the desirables as condition deteriorates and replace the least desirables as condition improves. They may be less palatable to grazing animals or be more resistant to grazing use.
3. Least desirable plants include those that are definitely the poorer species in an ecosystem and consist principally of annuals, invaders, and noxious and low-value forage plants.

The erosion condition classes and the above plant classifications result in the following forage condition criteria:

1. Good Condition: Composition is 40 percent or more of both desirable and intermediate species with at least 20 percent made up of desirable species. Erosion condition class is slight to stable.
2. Fair Condition: Composition is 15 to 39 percent of desirable and intermediate species with 5 or more percent made up of desirable species. Erosion condition class is less than critical. Also, those ecosystems where the composition comprises 60 percent or more of intermediate species and less than 5 percent of desirable species will be rated fair condition when the erosion condition class is moderate to stable.
3. Poor Condition: Composition is less than 15 percent desirable and intermediate species. Erosion condition class is critical to severe. (It should be noted that if the erosion condition class is critical to severe, the site is rated in poor condition regardless of the plant composition.)

These criteria, based on the range and phase I watershed surveys, were used to determine forage condition in the Three Corners Planning Unit. Table 1 is an example of how forage condition could have been determined for an allotment in the pinyon-juniper vegetation type. For this example, the allotment would be rated in fair condition since there is 30 percent composition of species in the desirable and intermediate classes and the erosion condition class is less than critical.

APPENDIX II-5 (concluded)

TABLE 1

Example of Criteria for Determining Present
Forage Condition Class on an Allotment
in Pinyon-Juniper Vegetation Type

Plant Species	Percent Species Composition
<u>Desirable</u>	
Indian ricegrass	10
Needle-and-thread grass	5
<u>Intermediate</u>	
Squirreltail	10
Sandberg bluegrass	5
<u>Least Desirable</u>	
Pinyon-juniper	60
Snake weed	5
Buckwheat	<u>5</u>
	100
Condition Class (Moderate Erosion)	

APPENDIX II-6
Range Trend Methodology
(BLM Manual 4412.22c)

Range trend studies are used to determine changes in vegetation and soil characteristics as a direct result of environmental factors, primarily climate and grazing.

The BLM uses the stratification-key area-key species concept in range trend studies to obtain a representative sample of range trend. Stratification means dividing an allotment or pasture into small homogeneous areas of similar characteristics.

Key areas are portions of a stratum which, because of location, grazing value, and/or use, serve as indicative samples of conditions within the stratum. Permanent range trend plots (5 feet by 5 feet) are located on key areas within each stratum of an allotment.

Collection of trend data in the Three Corners Area was gathered on the permanent plots by three separate but complementary activities: photographs, estimations, and observed apparent trend.

Close-up photographs show the soil surface characteristics and the amount of ground surface (at a given time) covered by vegetation and litter. General view photographs present a broad view of the area.

Measurement or estimations are used to show quantitative changes that may or may not be seen in the photograph.

Apparent trend is based on observations made in the vicinity of the plot.

The photographs, measurements, or estimations, and the write-up on apparent trend when compared with the same site data in later years furnish evidence of vegetation and soil changes (trend).

APPENDIX I1-7
Methods of Projecting Wildlife Populations

A. POPULATION ESTIMATES AND SEASON OF USE FOR BIG GAME

1. Deer

a. Deer population estimates for allotment were obtained using three steps. First the Herd Unit population was calculated. Second, that was divided to the part using BLM land by season. Third, the BLM number was split into allotments. Examples are shown below. Harvest percentages for a 20-year period (1956-1976) were averaged and back multiplied against annual harvest estimates as listed in UDWR's "Big Game Harvest Record". By this means, present populations for herd units 25 and 26 were estimated. The percentage on the 20 year harvest mean were 21.3 percent for herd unit 26, and 20.4 for herd unit 25. Confidence limits were ± 4.5 and ± 10.8 percent respectively ($P > 0.9$).

Example: $\frac{1976 \text{ harvest estimate, } 1147 \text{ deer}}{20 \text{ year harvest mean, } 21.3 \%} = 5385 \text{ total population estimate on Herd unit 26}$

b. The percentage of each deer herd occurring on BLM land in the planning unit were estimated as follows:

Herd Unit 25--10 percent summer (June 1 to Oct. 30).
70 percent winter (Nov. 1 to May 31).

Herd Unit 26--15 percent summer (June 1 to Oct 30).
20 percent winter (Nov. 1 to May 31).

Example:

15 percent summer X 5385 Herd Unit total = 808 summer deer on Herd Unit 26

c. Estimated numbers were then prorated over the allotments included in the planning unit. Factors influencing the allocation of each allotment included plant species composition, forage cover mixture and past population histories. School Bus allotment contains 3 percent of the summer range.

Example:

3 percent summer X 808 Herd Unit 26 summer = 25 Deer summer
on School Bus Allotment.

2. Elk

a. Elk populations were estimated for allotments using methods outlined below. Aerial census figures compiled by UDWR form the base for elk population estimates. The generally accepted percentage of the total population for aerial census of elk is 75 percent. To allow for this correction, the census

APPENDIX II-7 (concluded)

data was multiplied by 1.33. The 1976 census for Ashley Vernal for the planning unit was 496.

Example:

446 Elk, 1976 census X 1.33 = 660 Total Elk on the planning unit.

b. Following are estimated percentages of the herd unit on public lands in the planning unit:

Herd Unit 6 (Ashley-Daggett)--10 percent winter.

Herd Unit 7 (Goslin-Three Corners)--65 percent year-long.

Herd Unit 8 (Ashley-Vernal)--40 percent year-long.

c. Numbers were prorated to each allotment as for deer. Factors influencing the allocation of each allotment included plant species composition, forage cover mixture and past population histories. School Bus Allotments contains 1.8 percent of the BLM Elk range.

Example:

1.8 percent on School Bus X 264 Elk = 5 Elk on the School Bus Allotment

3. Antelope

Antelope population estimates were arrived at in a similar manner as elk.

Example:

1976 aerial count (Daggett) = 267 X 1.33 = 355 total estimated population. The percent of animals counted in the planning unit were on BLM lands.

It should be noted that in doing this, an allotment might show five elk for the summer period. This does not imply that five elk are actually there for 5 months, but that this allotment is part of a larger population's home range and will receive its proportionate share of use as the population moves about.

APPENDIX II-8
Description of Visual Resource Management Classes
and Methodology for Determination of Management Classes

I. Visual Resource Management Classes

The BLM's Visual Resource Management (VRM) system divides public lands administered by the BLM into five Visual Resource Management Classes. The management objectives for each VRM class are described below:

- Class I. This class provides for natural ecological changes only. (There are no Class I areas within the planning unit.)
- Class II. Changes in any of the basic landscape elements should not be evident in the management activity.
- Class III. Changes in the basic elements may be evident in the management activity. However, modifications should remain subordinate to the landscape character.
- Class IV. Changes may subordinate the landscape character, but must reflect what could be natural occurrence in the characteristic area.
- Class V. Change is required. The area has been disturbed to a point where rehabilitation is needed to bring it back into character with the surrounding landscape.

II. Methodology for Determination of Management Classes

Three factors--scenic quality, visibility, and visual sensitivity--were rated in a standard VRM numerical matrix to determine the visual resource management class for an area. Definitions of the three factors are:

VRM FACTORS

SCENIC QUALITY

Class A: Areas in which landform, water, and vegetative patterns are of unusual or outstanding visual quality.

Class B: Areas in which features contain variety, but are not outstanding. Areas lack dominating features.

Class C: Areas in which features have little variety and become monotonous.

VISUAL ZONES

Foreground-Middleground (FMg): An area that can be seen from travel routes or use areas for a distance of 3 to 5 miles. Management activities can be seen in detail. The outer boundary of this zone is defined as the point where texture and form of individual plants is no longer apparent in the landscape.

APPENDIX II-8 (concluded)

Background: The remaining area that can be seen, within about 15 miles, from travel routes or use areas. Vegetation can be discerned at least as patterns of light and dark.

Seldom Seen: Areas that are beyond the background zone or cannot be seen from travel routes or use areas, or can be seen from low use transportation routes only.

SENSITIVITY LEVELS

High Sensitivity: Public concern for quality of the visual resource is major.

Medium Sensitivity: Public concern for quality of the visual resource is secondary.

Low Sensitivity: Public concern for quality of the visual resource is minor.

Criteria weighted for determining visual sensitivity include existing and proposed land uses, use levels, community attitudes, and agency attitudes.

APPENDIX II-9
BLM's Wilderness Review Process

The Federal Land Policy and Management Act (FLPMA) of 1976 directs the BLM to review lands under its jurisdiction for wilderness values. In determining wilderness values, the law directs the Bureau to use the wilderness character definition given by Congress in the Wilderness Act of 1964. In Section 2(c) of that Act, Congress states that wilderness is essentially an area of undeveloped federal land in a natural condition, without permanent improvements or human habitation, which has outstanding opportunities for solitude or a primitive and unconfined type of recreation. The area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

BLM's wilderness review begins with an inventory of public land roadless areas of 5,000 acres or more to determine which of these areas has wilderness character. Those areas having wilderness character are then studied to determine their suitability or non-suitability for wilderness designation. BLM must make suitability recommendations to the President of the United States no later than October 21, 1991. The President must then report his recommendations to Congress within two years. Congress will make any final decision on wilderness designation. FLPMA mandates that BLM manage lands that are being reviewed in a manner which will not impair their suitability for wilderness designation by Congress.

APPENDIX II-10

Determining Size of Ranch Operation and Three Average Ranch Budgets

Ranch operations were classified on the basis of their total ranch size. Each of the three classes is assumed to be representative of the groups. Group size is:

1. Small Ranch--Less than 100 cattle or 500 sheep.
2. Medium Ranch--101 to 500 cattle or 501 to 2,500 sheep.
3. Large Ranch--More than 501 cattle or more than 2,501 sheep.

The ranching "income" section is based on estimates obtained from BLM employees who currently work or have worked in the area and the average price paid for livestock in 1977 derived from Utah Agricultural Statistic, 1978.

Data for the cost portion of the budgets were obtained from Rich County ranchers during the preparation of an environmental statement in that area. It is their best estimates of 1977 costs.

Ranch budgets for the three average ranches are shown on Table 1, 2, and 3.

TABLE 1
Small Scale Ranch Income

<u>Gross Income</u>		
Ranch income from 81 animal units (966 AUMs)		\$8,885.00
<u>Cattle</u>		
Herd Composition		
Total: 81		
Bulls: 3		
Replacement Heifers: 13 (1/6 of 81).		
Producing Cows: 65		
Projected Sales		
Sell 11 cows	2,869.00	
(13 replacement-2 death loss)		
(800 ^a lbs @ \$32.60 ^b per hundred weight = \$260.80)		
Sell 42 calves	5,527.00	
(65 cows X 85 percent calf crop-13 replacements)		
(350 ^a lbs. @ \$37.61 ^b per hundred weight = \$131.6)		
Sell 1 bulls	489.00	
(1,500 ^a lbs @ \$32.64 ^b per hundred weight = \$489.00)		
<u>Expenses^c</u>		7,735.00
Fixed Costs		
Taxes	780.00	
Building repairs	530.00	
Irrigation	306.00	
Miscellaneous expenses	394.00	
Utilities	1,413.00	
Interest on loans	1,575.00	
	<u>\$ 4,998.00</u>	
Variable costs		
Grazing fees (BLM)	\$ 224.00	
(USFS)	98.00	
Veterinary fees	117.00	
Freight and trucking	371.00	
Fuel and oil	1,757.00	
Labor	170.00	
	<u>\$ 2,737.00</u>	
<u>Net Income</u>		\$1,150.00

^aOldroyd, Partridge, and Tolman, 1979.

^b"Utah Ag. State, 1978" 1977 average price.

^cBLM, 1977.

TABLE 2
Medium Scale Ranch Income

<u>Gross Income</u>	
Ranch income from 224 animal units (2,693 AUMs)	\$39,006.00
<u>Cattle</u>	
Herd Composition	
Total: 141	
Bulls: 5	
Replacement Heifers: 23 (1/6 of 141).	
Producing Cows: 113	
Projected Annual Sales	
Sell 20 cows	\$5,216.00
(23 replacement--3 death loss)	
(800 lbs @ \$32.60 per hundred weight = \$260.80)	
Sell 73 calves	9,607.00
(113 cows X 85 percent calf crop-23 replacements)	
(350 ^a lbs. @ \$37.61 per hundred weight = \$131.6)	
Sell 1 bulls	489.00
(1,500 ^a lbs @ \$32.64 per hundred weight = \$489.00)	
Total Income from cattle	15,312.00
<u>Sheep</u>	
Herd Composition	
Total 415 (83 animal units X 5)	
Rams 17	
Ewes 415	
Replacement lambs: 69 (1/6 of 415)	
Projected Annual Sale	
Sell 35 ewes	892.00
(69 replacement-8 death loss)	
(135 lbs. @ 10.84 per hundred weight = \$14.63)	
Sell 519 lambs	19,463.00
(415 ewes X 125 percent lamb crop)	
(75 lbs @ 50¢ per hundred weight = \$37.50)	
Sell 4 rams @ \$10.00 each	40.00
Sell Wool	3,299.00
(Number of ewes X 10.6 lbs X \$75 per lb.)	
Total Income from sheep	\$23,694.00
<u>Expenses</u>	45,920.00
Fixed Costs	
Taxes	2,603.00
Building repairs	3,008.00
Fertilizer and repairs	180.00
Seed and supplies	100.00
Irrigation	788.00
Rent	883.00
Miscellaneous expenses	2,440.00
Utilities	1,735.00

TABLE 2 (concluded)

Expenses (continued)

Interest on loans	5,078.00
Predator control	20.00
Depreciation	6,981.00
	<u>\$23,816.00</u>
Variable Costs	
Grazing fees (BLM)	\$ 590.00
(USFS)	283.00
Feed	14,003.00
Livestock purchases	450.00
Veterinary fees	306.00
Freight and trucking	368.00
Fuel and oil	3,110.00
Labor	2,624.00
Machinery	370.00
	<u>\$22,104.00</u>

Net Income (Loss)-6,914.02

TABLE 3

Large Scale Ranch Income

Gross Income

Ranch income from 705 animal units (8,460 AUMs)	\$120,060.00
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CattleHerd Composition

Total: 391

Bulls: 14

Replacement Heifers: 63 (1/6 of 377).

Producing Cows: 314

Projected Annual Sales

Sell 55 cows	\$14,344.00
--------------	-------------

(63 replacement-8 death loss)

(800 lbs @ \$32.60 per hundred weight = \$260.80)

Sell 188 calves	\$24,767.00
-----------------	-------------

(251 cows X 80 percent calf crop-52 replacements)

(350 lbs. @ \$37.61 per hundred weight = \$131.6)

Sell 3 bulls	\$ 1,467.00
--------------	-------------

(1,500 lbs @ \$32.64 per hundred weight = \$489.00)

Total Income from cattle	40,578.00
--------------------------	-----------

Income per cattle AU	103.78
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SheepHerd Composition

Total 1,570 = (314 animal units X 5)

Rams 63

Ewes 1,570

Replacement lambs: 262 (1/6 of 1,570)

Projected Annual Sale

Sell 212 ewes	3,102.00
---------------	----------

(262 replacement-50 death loss)

(135 lbs. @ \$10.84 per hundred weight = \$14.63)

Sell 1,701 lambs	\$63,788.00
------------------	-------------

(1,570 ewes X 125 percent lamb crop - 262 replacement)

(75 lbs @ \$50 per hundred weight = \$37.50)

Sell 11 rams @ \$10.00 each	110.00
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Sell Wool	12,482.00
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(1,570 ewes X 10.6 lbs X \$.75 per lb.

Total Income from sheep	\$79,482.00
-------------------------	-------------

Income per sheep AU.	\$ 253.13
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ExpensesFixed Costs

Taxes	3,000.00
-------	----------

Building repairs	3,300.00
------------------	----------

Fertilizer and repairs	2,350.00
------------------------	----------

Seed and supplies	300.00
-------------------	--------

Irrigation	1,200.00
------------	----------

Rent	6,300.00
------	----------

\$63,016.00

TABLE 3 (concluded)

Expenses (continued)

Miscellaneous expenses	2,000.00
Utilities	2,720.00
Interest on loans	20,000.00
Depreciation	7,650.00
	<u>\$48,820.00</u>
Variable Costs	
Grazing fees (BLM)	\$ 1,415.00
(USFS)	534.00
Feed	1,837.00
Livestock purchases	1,800.00
Veterinary fees	830.00
Freight and trucking	1,400.00
Fuel and oil	3,060.00
Labor	3,100.00
Machinery	220.00
	<u>\$14,196.00</u>

Net Income\$57,044.00

APPENDIX III-1

Methodology for Analyzing Impacts

Impacts for each environmental resource and related topics shown in Chapter 3, were based on a detailed cause-effect analysis performed by each team member who represented a particular discipline or set of related disciplines.

All conceivable impact topics were discussed in a series of interdisciplinary-management meetings and significant impact topics (sub categories) identified. In order to be significant, a topic must meet at least one of the following criteria 1) substantially affect the human environment, 2) be controversial or of high public concern, or 3) be legally and specifically protected by law (i.e., threatened and endangered species, cultural resources, wild horses and burros, etc.).

After significant impact topics (sub-categories) were identified, a detailed, documented analysis was performed by interdisciplinary team members on a series of forms for each sub-category and separate proposed action. (Thirty-two separate series of forms of approximately 11 forms per series or about 350 separate forms in all were prepared in this step of analysis). One completed form for Composition and Vegetation Ground Cover is attached as an example.

Each series of forms was then summarized and the findings appear in Chapter 3.

1. Resource Category: Vegetation and Forage Sub-Category: Composition and Vegetation Ground Cover

2. Proposed Action:
No Livestock Grazing (Rye Grass)

3. Existing Situation:
The following vegetation ground cover and composition of desirable plant species is found on the Rye Grass allotment:

Vegetation Ground Cover (%)	Composition (%)				
	Grass	Forbs	Shrubs		Total ^a
			Big Sagebrush	Other	
25	25	11	40	13	79

^aOnly 30 percent of big sagebrush is desirable, therefore, 30 percent or less is considered in the total.

4. Change From Present Management That Would Affect the Subject Sub-Category:
No change, except an increase in allocation of 23 AUMs for deer and 49 AUMs for elk.

5. Specific Cause of any Probable Impacts:
Continued use by big game animals during winter months. Big game animals during this season of use show preference for shrub species.

6. Probable Impacts and Explanation:
Grass would continue to increase and shrubs decrease. Though elk make heavier use of grass than deer, it is not expected that an increase of 49 elk AUMs use during winter and summer would stop increase in grasses. The exact percent composition change is unknown but it is not likely that big sagebrush would become less than 20 percent in the composition. Vegetation ground cover would increase but still remain between 25 to 35 percent.

7. Documentation of Impacts:
Stoddart and Smith, 1955; Heady, 1975.

8. Affected Area:
Entire allotment (2,860 acres of public land).

9. Time Frame:
Within 15 to 20 years.

10. Comparison With Planning Objective:
Vegetation ground cover and plant composition objectives would be met.
11. Interrelationship With Other Resources and Activities:
Wildlife and Watershed

APPENDIX III-2

Determination of Visual Impact

Visual impacts of a proposed project are determined through the use of a "contrast rating". Each proposed range development is analyzed to predict what contrast (i.e., deviations from form, line, color and texture of the landscape) it would cause if added to the existing landscape. The contrast ratings (numerical scores) are then compared with the numerical limits for each VRM class. Contrast ratings greater than the limits of the VRM classes would indicate discordant deviations that cause adverse visual impacts.

For analysis, a general contrast rating was prepared for each type of activity in the proposed action and alternatives, subject to Chapter I stipulations. Table 1 summarizes the ratings. Each project will be analyzed in an EAR at the site specific level, which may increase or decrease the contrast rating and, consequently, the visual impact.

APPENDIX VIII-1

Rationale for Estimated Forage Production and Forage Allocations for Alternative Actions

I. ESTIMATED FORAGE PRODUCTION AND PRESENT USE

Estimated forage production and present use were calculated as described in Appendix I-4.

II. ALLOCATIONS OF ESTIMATED FORAGE PRODUCTION

A. Livestock Grazing at Full Forage Production

Big Game Allocation

Under this alternative, the big game allocation would be all of the estimated big game forage production. This is assumed to be non-competitive forage not available for livestock use.

Livestock Allocation

The initial livestock allocation would include all of the inventoried forage. It is assumed that on the Dry Creek-South Pot Creek-Wild Mountain Allotment where the present improved system has been in effect only 3 years, and on all allotments that would be placed under intensive management systems, a 10 percent increase in inventoried forage production or 1,864 additional AUMs would result within 20 years.

Sagebrush spraying and chaining would convert sagebrush areas from approximately 10 acres per AUM to approximately 4 acres per AUM for an increase of 0.14 AUMs per acre. Chaining would alter pinyon-juniper areas from about 15 acres per AUM to approximately 4 acres per AUM for an increase of 0.17 AUMs per acre.

With 47,777 acres of big sagebrush control and 3,700 acres of pinyon-juniper control, an additional 7,317 AUMs could be provided. All additional AUMs from management and vegetation manipulation would be allocated to livestock.

Summary

The following summarizes the allocations for the alternative for livestock grazing at full forage production:

Big Game Forage Allocation

Estimated Non-competitive Big Game Forage Production at Present (Appendix I-5)	=	8,350 AUMs
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Livestock Forage Allocation

Initial

Inventoried Forage Production (Appendix I-5)	=	25,933 AUMs.
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APPENDIX VIII-1 (continued)

Long-Term (20 years)

Initial Livestock Forage Allocation		Additional AUMs From Vegetation Manipulation		Increase in Production From Forage Response to Management		Total
25,933	+	7,317	+	1,864	=	35,174 AUMs

B. Continuation of Present Livestock Management and Level of Use

Big Game Allocation

The big game allocation would be 16,770 AUMs, which is the same as the long-term allocation as described for the proposed action. This includes all AUMs that are presently unused.

Livestock Allocation

Livestock would initially be allocated the present 15,901 preference AUMs and 1,672 temporary non-renewable AUMs. Within 20 years, continuation of the recently implemented improved management system on the Dry Creek-South Pot Creek-Wild Mountain Allotment could result in an additional 191 AUMs (10 percent increase of the inventoried forage production). The 1,260 acres of sagebrush spraying which would be done on the Hoy Mountain and Ruple Cabin Allotments would result in an increase of 518 AUMs. These increases in forage production through continuation of present management would be allocated to livestock for a total allocation of 18,282 AUMs.

Summary

The following summarizes the forage allocation for continuation of present livestock management and level of use.

Big Game Forage Allocation

Non-Competitive Forage Used by Big Game		Inventoried Forage Presently Used by Big Game		Inventoried Forage Presently Not Used by Livestock or Big Game		Total
8,350	+	2,708	+	5,712	=	16,770 AUMs

Livestock Forage Allocation

Initial Preference AUMs		Present Temporary Non-renewable AUMs		Total
15,901	+	1,672	=	17,573 AUMs

APPENDIX VIII-1 (continued)

Long-Term (20 years)

Present Preference AUMs		Present Temporary Non-renewable AUMs		Additional AUMs From Continuation of Present Management		Additional AUMs From Sagebrush Spraying		Total
15,901	+	1,672	+	191	+	518	=	18,282 AUMs

C. A 50 Percent Reduction in the Proposed Level of Livestock Use

Big Game Allocation

The big game allocation for this alternative would be 16,770 AUMs which is the same as the long term allocation as described for the proposed action.

Livestock Allocation

The livestock allocation for this alternative is 50 percent of the initial livestock allocation of the proposed action.

Allocation to Watershed Protection, Visual Resources, and Recreation

The difference between livestock forage production and the allocations to big game and livestock would remain unused and available for watershed protection, enhancement of visual resources, and recreation.

Summary

The following summarizes the allocation for the alternative to graze livestock at 50 percent of the proposed level.

Big Game Forage Allocation:

Non-competitive Forage Used by Big Game		Inventoried Forage Presently Used by Big Game		Inventoried Forage Presently Not Used by Livestock or Big Game		Total
8,350	+	2,708	+	5,712	=	16,770 AUMs

Livestock Forage Allocation:

Preference						Total
50 Percent of Initial Allocation Under the Proposed Action. (50% X 15,901)			+	50 Percent of Temporary Non-renewable Allocation under the Proposed Action (50% X 3,542)		= 6,621 AUMs

Allocation to Other resources

Estimated Forage Production		Forage Allocation to Big Game and Livestock		Total
34,343	-	26,391	=	7,952 AUMs

APPENDIX VIII-1 (concluded)

D. Elimination of Livestock Grazing

Big Game Allocation

The big game allocation for this alternative would be 16,770 which is the same as the long-term allocation as described for the proposed action.

Allocation for Watershed Protection, Visual Resources, and Recreation

The allocation for these resources would be 17,573 AUMs which is the difference between estimated forage production (34,343 AUMs) and the big game allocation (16,770).

Summary

The following summarizes the allocation for the alternative for the elimination of livestock grazing.

Big Game Forage Allocation

Non-competitive Forage Used by Big Game		Inventoried Forage Presently Used by Big Game		Inventoried Forage Presently Not Used by Livestock or Big Game		Total
8,350	+	2,708	+	5,712	=	16,770 AUMs

Allocation to Other Resources

Estimated Forage Production		Forage Allocation to Big Game		Total
34,343	-	16,770	=	17,573 AUMs

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)													
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d			Estimated Current Wildlife Use (AUMs) ^f			Initial					Long Term (20th Year)					
							Livestock		Big Game									Livestock ^g		Big Game ^h			Livestock ⁱ		Big Game			
							From	to	Deer	Elk	Ant.	Kind	No.	AUMs Pref. ^e	AUMs Actual	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.
	P.L.	St.	Prvt.	Total	Inv.	Other																						
CONTINUATION OF EXISTING MANAGEMENT (total)	51,513	4,134	25,910	81,557	9,233	1,714						Shp. Cat.	10,055 2,411	5,853	5,394	1,722	755	0	2,137	7,096	1,435	279	0	2,600	9,166	1,435	279	0
Continue Allotment-Wide Grazing (sub total)	11,975	1,400	20,380	33,755	2,901	481						Shp. Cat.	10,055 688	1,406	965	472	308	0	2,137	764	348	133	0	2,600	848	348	133	0
Spring and Fall (Begin in May) (sub total)	5,475	1,280	12,300	19,055	1,820	226						Shp.	7,365	695	263	245	109	0	1,820	0	164	62	0	2,241	0	164	62	0
Bowery Spring	1,240	1,280	2,970	5,490	535	103	5/1 9/16	6/30 10/31	S,W	none	none	Shp.	1,484	135	47	166	0	0	535	0	103	0	0	633	0	103	0	0
Gadson Draw-Gerber Spring	1,710	0	3,540	5,250	413	81	5/1 9/16	6/30 10/31	S	S,W	none	Shp.	1,902	213	75	31	96	0	413	0	24	57	0	491	0	24	57	0
Highway	440	0	630	1,070	197	3	5/1 9/16	6/30 10/31	S	none	none	Shp.	302	57	21	4	0	0	197	0	3	0	0	244	0	3	0	0
McKee Spring	880	0	2,440	3,320	406	7	5/1 9/16	6/30 10/31	S	none	none	Shp.	1,257	176	70	9	0	0	406	0	7	0	0	528	0	7	0	0
Natural Lake	1,125	0	1,720	2,845	250	25	5/1 9/1	6/30 11/5	S	S	none	Shp.	2,400	100	36	26	13	0	250	0	20	5	0	326	0	20	5	0
Smokem-up	80	0	1,000	1,080	19	7	5/1 9/16	6/30 10/30	S	none	none	Shp.	20	14	14	9	0	0	19	0	7	0	0	19	0	7	0	0
Spring-Summer-Fall (Begin in May or June) (sub total)	4,220	120	5,560	9,900	742	148						Shp. Cat.	2,690 253	437	428	124	135	0	317	425	99	49	0	359	509	99	49	0
Bates Spring	320	0	680	1,000	105	7	5/11	11/10	S	none	none	Shp.	645	55	55	9	0	0	105	0	7	0	0	147	0	7	0	0
Beaver Dam ^h	280	80	1,080	1,440	124	11	5/6	11/15	S	S	none	Shp.	756	34	34	9	9	0	124	0	7	4	0	124	0	7	4	0
Blair Basin	360	0	520	880	40	18	6/1	10/31	S	S,W	none	Cat.	60	15	15	9	32	0	0	40	7	11	0	0	40	7	11	0
East Cow	590	0	1,490	2,080	75	29	6/1	10/31	S	S,W	none	Cat.	76	50	50	22	32	0	0	75	18	11	0	0	89	18	11	0
Log Cabin ^h	500	0	120	620	88	20	5/6	11/15	S	S	none	Shp.	1,289	58	58	17	17	0	88	0	13	7	0	88	0	13	7	0
Mail Draw	790	0	360	1,150	135	35	5/16	10/31	S	W	none	Cat.	42	85	85	36	19	0	0	135	29	6	0	0	205	29	6	0
Mame's Hole-Bear Hollow	1,380	40	1,310	2,730	175	28	5/10	10/26	S	S	none	Cat.	75	140	131	22	26	0	0	175	18	10	0	0	175	18	10	0
Spring-Summer (Begin in June) (sub total)	2,280	0	2,520	4,800	339	107						Cat.	435	274	274	103	64	0	0	339	85	22	0	0	339	85	22	0
Cove	2,050	0	1,610	3,660	323	97	6/1	9/15	S,W	S,W	none	Cat.	265	268	268	93	58	0	0	323	77	20	0	0	323	77	20	0
West Cow	230	0	910	1,140	16	10	6/1	9/15	S,W	S,W	none	Cat.	170	6	6	10	6	0	0	16	8	2	0	0	16	8	2	0
Continue Existing Improved Management (sub total)	39,538	2,734	5,530	47,802	6,332	1,233						Cat.	1,223	4,447	4,429	1,250	447	0	0	6,332	1,087	146	0	0	8,318	1,087	146	0
Rest Rotation (sub total)	12,008	1,714	1,430	15,152	1,677	588						Cat.	175	552	1,201	627	104	0	0	1,677	550	38	0	0	1,985	550	38	0
Hoy Mountain (Spring, Summer, Fall Grazing)	3,550	430	1,430	5,410	637	144	5/16	10/31	S,W	S,W	none	Cat.	175	552	529	124	104	0	0	637	106	38	0	0	704	106	38	0
Red Creek (Spring Grazing)	8,458	1,284	0	9,742	1,040	444	4/6	6/5	S,W	none	none	Cat.	0 ^j	0 ^j	672	503	0	0	0	1,040	444	0	0	0	1,281	444	0	0

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^f			Initial		Long Term (20th Year)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
							Livestock		Big Game			Kind	No.	AUMs ^e Pref.	AUMs Actual				Livestock ^g		Big Game ^h		Livestock ⁱ			Big Game																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
							From	to	Deer	Elk	Ant.								Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	P.L.	St.	Prvt.	Total	Inv.	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)														
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^f			Initial										
																			Long Term (20th Year)										
	P.L.	St.	Prvt.	Total	Inv.	Other	Livestock From	to	8ig Game Deer	Elk	Ant.	Kind	No.	AUMs Pref. ^e	AUMs Actual	Deer	Elk	Ant.	Livestock ^g Sheep	Cattle	8ig Game ^h Deer	Elk	Ant.	Livestock ⁱ Sheep	Cattle	8ig Game Deer	Elk	Ant.	
IMPLEMENT IMPROVED GRAZING MANAGEMENT (continued)																													
Spring and Fall, With Periodic Spring Deferment (sub total)	11,780	1,600	9,290	22,670	3,816	370						Shp.	7,023	2,036	1,370	499	96	0	3,816	0	316	54	0	4,982	0	316	54	0	
Bealer Basin-Diamond Gulch-Diamond Spring	5,650	1,600	4,700	11,950	2,200	154	5/1 9/16	6/30 11/30	S,W	S,W	none	Shp.	3,455	1,120	761	246	0	0	2,200	0	154	0	0	2,799	0	154	0	0	
Cooper Draw	2,480	0	840	3,320	734	46	5/1 9/6	6/30 11/15	S	S,W	none	Shp.	568	344	164	73	0	0	734	0	46	0	0	1,025	0	46	0	0	
Davis Draw-Crouse Reservoir-Lambson	3,650	0	3,750	7,400	882	170	5/6 9/1	7/5 11/5	S	S,W	none	Shp.	3,000	572	445	180	96	0	882	0	116	54	0	1,158	0	116	54	0	
GRAND TOTAL	190,536	18,749	73,511	282,796	25,993	8,350						Shp. Cat.	17,078 5,069	15,90 ^e	13,952	8,070	2,633	355	5,953	20,040	6,984	1,027	339	7,582	27,592	6,984	1,027	339	

^aP.L. = public land; St. = state land (land grant sections); Prvt. = private or former private land purchased by wildlife agencies.

^bInv. = useable livestock forage identified in 8LM surveys of 1958 or 1976; Other = additional forage known to be used by big game, based on actual big game use and fecal analysis and inventoried forage not useable for livestock.

^cSeason of Use, Big Game S - Summer (May 15 to October 15), W - Winter (October 16 to May 14).

^dAUMs Pref. = AUMs Preference (10 year permit), AUMs Actual = 5 year average actual use.

^eDoes not include non-renewable permits up to 1,000 AUMs on Taylor Flat-Watson and 672 on Red Creek which are permitted on an annual basis.

^fEstimates of current use by big game were made by 8LM personnel based on Utah Division of Wildlife Resource's herd management unit figures.

^gRepresents allocation of all inventoried forage.

^hAllocation of non-competitive forage.

ⁱIncludes 1,864 AUMs attributable to forage response to management and 7,317 AUMs from sagebrush and pinyon-juniper control. Also includes 1,672 AUMs that are presently permitted on temporary non-use.

APPENDIX VIII-3

Estimated Development Required to Implement the Alternative Action of Full Forage Production

Allotment	Required Developments	Required Sagebrush Control (acres) ^a	Required Pinyon-Juniper Control (acres) ^b
<u>CONTINUATION OF EXISTING MANAGEMENT</u>			
<u>Continuation of Allotment- Wide Grazing</u>			
<u>Spring and Fall (Begin in May)</u>			
Bowery Spring	3 reservoirs	700	None
Gadsen Draw- Gerber Spring	1 spring development 1 water trough 1 reservoir	556	None
Highway	1 reservoir	336	None
McKee Spring	1 pipeline (1 mi.) 2 water troughs 1 reservoir	870	None
Natural Lake	None	540	None
Smokem-Up	None	None	None
<u>Spring-Summer-Fall (Begin in May and June)</u>			
Bates Spring	1 reservoir	300	None
Beaver Dam	None	None	None
Blair Basin	None	None	None
East Cow	None	None	80
Log Cabin	None	None	None
Mail Draw	None	500	None
Mame's Hole-Bear Hollow	None	None	None

APPENDIX VIII-3 (continued)

Allotment	Required Developments	Required Sagebrush Control (acres) ^a	Required Pinyon-Juniper Control (acres) ^b
<u>Spring-Summer (begin in June)</u>			
Cove	None	None	None
West Cow	None	None	None
<u>Continue Existing Improved Management</u>			
<u>Rest Rotation</u>			
Hoy Mountain	None	480	None
Red Creek	1 spring developed 1 water trough	1,720	None
<u>Deferred Rotation</u>			
Dry Creek- So. Pot Creek- Wild Mountain	3 pipelines (3 mi.) 8 watertroughs 2 storage tanks 2 reservoirs	6,720	560
<u>Rest Rotation and Deferred Rotation</u>			
Ruple Cabin	4 pipelines (5 mi.) 10 water troughs 3 storage tanks 2 reservoirs	3,220	None
<u>IMPLEMENT IMPROVED GRAZING MANAGEMENT</u>			
<u>Spring, Summer, and Fall, With Periodic Spring Deferment</u>			
Bridgeport	1 pipeline (2 mi.) 5 water troughs 1 storage tanks	3,865 ^c	None
Clay Basin- Antelope Flat- Goslin Mountain	2 pipelines (8 mi.) 16 water troughs 1 storage tank 1 spring developed 4 reservoirs	9,360	None
Gadson	2 miles fence 2 reservoirs	860	None

APPENDIX VIII-3 (continued)

Allotment	Required Developments	Required Sagebrush Control (acres) ^a	Required Pinyon-Juniper Control (acres) ^b
Hatch Cove	1 spring developed 4 reservoirs 1 mile fence	2,426	None
Hoy Flat	1 spring developed 2 reservoirs 0.5 mile fence	1,480	None
Jackson Draw- Crouse Canyon- Dry Hollow	2 pipelines (1 mi.) 2 water troughs 1 reservoir	540	None
Little Hole	2 springs developed 2 mile fence	660	None
Offield Mountain	1 spring developed 2 miles fence	200	820
Pot Creek	2 miles fence	None	None
Rye Grass	1 spring developed 1 storage tank 15 miles fence	None	None
School Bus	1 spring developed 2 miles fence 1 reservoir	1,000	None
Sears Canyon- Marshall Draw	1 spring developed 2 pipelines (2 mi.) 2 water troughs	440	None
Serviceberry Spring	2 miles fence 1 reservoir	560	None
Shiner	3 miles fence 1 spring developed 1 pipeline (1 mi.) 2 water troughs	252	400
Taylor Flat-Watson	1 spring developed 1 pipeline (1 mi.) 2 water troughs 4 reservoirs	1,800	1,600
Warren Draw	3 springs developed 4 miles fence	None	240

APPENDIX VIII-3 (concluded)

Allotment	Required Developments	Required Sagebrush Control (acres) ^a	Required Pinyon-Juniper Control (acres) ^b
Willow Creek	2 springs developed 2 reservoirs 5 miles fence	2,780	None
<u>Spring and Fall, With Periodic Spring Deferrment</u>			
Bealer Basin- Diamond Gulch- Diamond Spring	10 reservoirs 2 pipelines (2 mi.) 5 water troughs	2,710	None
Cooper Draw	1 spring developed 4 reservoirs 2 miles fence	1,562	None
Davis Draw- Crouse Reservoir- Lambson	1 spring developed 4 water troughs 1 pipeline (2 mi.) 1 storage tank 3 reservoirs	1,340	None

^aAll sagebrush control would be done by spraying with 2,4-Dicholorophenoxyacetic acid (2,4-D) except on the Davis Draw-Crouse Reservoir-Lambson Allotment where the treatment would be chaining.

^bAll pinyon-juniper control would be done by chaining.

^cSeeding with adapted grasses would be required.

Existing Forage Use and Alternative Forage Allocation
With the Present Range Management and Level of Forage Allocation

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation													Proposed Forage Allocation (AUMs)															
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e			Initial					Long Term (20th Year)					
							Livestock		Big Game										Livestock		Big Game			Livestock		Big Game			
	P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Deer	Elk	Ant.	Kind	No.	AUMs Pref.	AUMs Actual	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	
No Livestock Grazing (sub total)	2,860	440	1,200	4,500	179	329	none	none	S,W	S,W	none	none	closed 1963				308	128	0	0	0	331	177	0	0	0	331	177	0
Rye Grass	2,860	440	1,200	4,500	179	329	none	none	S,W	S,W	none	none	closed 1963				308	128	0	0	0	331	177	0	0	0	331	177	0
Continue Allotment-Wide Grazing (sub total)	148,138	15,575	66,781	230,494	19,482	6,788							Shp. Cat.	17,078 3,845	11,454	9,523	6,512	2,058	355	3,152	9,669	8,311	5,140	365	3,152	9,669	8,311	5,140	365
Spring (April and May only) (sub total)	20,595	2,806	1,340	24,741	1,619	1,316							Cat.	84	139	688	1,367	19	25	0	1,139	1,596	169	31	0	1,139	1,596	169	31
Bridgeport	8,298	880	0	9,178	389	405	4/11	5/30	S,W	none	S,W	Cat.	84	139	122	434	0	25	0	139	524	100	31	0	139	524	100	31	
Taylor Flat-Watson	12,297	1,926	1,340	15,563	1,230	911	4/1	5/30	S,W	W	none	Cat.	0 ^f	0 ^f	566	933	19	0	0	1,000 ^g	1,072	69	0	0	1,000 ^g	1,072	69	0	
Spring and Fall (Begin in May) (sub total)	17,255	2,880	21,590	41,725	5,636	596							Shp.	14,388	2,731	1,633	744	205	0	2,731	0	1,805	1,696	0	2,731	0	1,805	1,696	0
Bealer Basin-Diamond Gulch-Diamond Spring	5,650	1,600	4,700	11,950	2,200	154	5/1 9/16	6/30 11/30	S,W	S,W	none	Shp.	3,455	1,120	761	246	0	0	1,120	0	585	649	0	1,120	0	585	649	0	
Bowery Spring	1,240	1,280	2,970	5,490	535	103	5/1 9/16	6/30 10/31	S,W	none	none	Shp.	1,484	135	47	166	0	0	135	0	395	108	0	135	0	395	108	0	
Cooper Draw	2,480	0	840	3,320	734	46	5/1 9/6	6/30 11/15	S	S,W	none	Shp.	568	344	164	73	0	0	344	0	298	138	0	344	0	298	138	0	
Davis Draw-Crouse Reservoir-Lambson	3,650	0	3,750	7,400	882	170	5/6	7/5	S	S,W	none	Shp.	3,000	572	445	180	96	0	572	0	270	210	0	572	0	270	210	0	
Gadson Draw-Gerber Spring	1,710	0	3,540	5,250	413	81	5/1 9/16	6/30 10/31	S	S,W	none	Shp.	1,902	213	75	31	96	0	213	0	74	207	0	213	0	74	207	0	
Highway	440	0	630	1,070	197	3	5/1 9/16	6/30 10/31	S	none	none	Shp.	302	57	21	4	0	0	57	0	46	97	0	57	0	46	97	0	
McKee Spring	880	0	2,440	3,320	406	7	5/1 9/16	6/30 10/31	S	none	none	Shp.	1,257	176	70	9	0	0	176	0	77	160	0	176	0	77	160	0	
Natural Lake	1,125	0	1,720	2,845	250	25	5/1 9/1	6/30 11/5	S	S	none	Shp.	2,400	100	36	26	13	0	100	0	50	125	0	100	0	50	125	0	
Smokem-up	80	0	1,000	1,080	19	7	5/1 9/16	6/30 10/30	S	none	none	Shp.	20	14	14	9	0	0	14	0	10	2	0	14	0	10	2	0	
Spring-Summer-Fall (Begin in May or June)(sub total)	108,008	9,889	41,331	159,228	11,888	4,769							Shp. Cat.	2,690 3,326	8,310	6,928	4,298	1,770	330	147	8,256	4,805	3,208	334	147	8,256	4,805	3,208	334
Bates Spring	320	0	680	1,000	105	7	5/11	11/10	S	none	none	Shp.	645	55	55	9	0	0	55	0	25	32	0	55	0	25	32	0	
Beaver Dam ^h	280	80	1,080	1,440	124	11	5/6	11/15	S	S	none	Shp.	756	34	34	9	9	0	34	0	20	81	0	34	0	20	81	0	
Blair Basin	360	0	520	880	40	18	6/1	10/31	S	S,W	none	Cat.	60	15	15	9	32	0	0	15	9	34	0	0	15	9	34	0	
Clay Basin-Antelope Flat-Goslin Mountain ^h	28,302	2,710	2,797	33,809	3,265	1,650	4/16	11/30	S,W	S,W	S,W	Cat.	550	2,905	2,612	1,405	290	293	0	2,905	1,416	301	293	0	2,905	1,416	301	293	
East Cow	590	0	1,490	2,080	75	29	6/1	10/31	S	S,W	none	Cat.	76	50	50	22	32	0	0	50	22	32	0	0	50	22	32	0	

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)														
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d			Estimated Current Wildlife Use (AUMs) ^e			Initial						Long Term (20th Year)					
							Livestock		Big Game			Kind	No.	AUMs Pref.				AUMs Actual	Livestock		Big Game			Livestock		Big Game			Ant.
							From	to	Deer	Elk	Ant.								Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	
	P.L.	St.	Prvt.	Total	Inv.	Other																							
Gadson	990	40	2,000	3,030	330	10	5/10	10/31	S	none	none	Cat.	103	60	58	13	0	0	0	60	58	222	0	0	60	58	222	0	
Hatch Cove	2,970	290	1,175	4,435	531	111	5/16	10/31	S,W	S	none	Cat.	70	281	162	124	13	0	0	281	176	185	0	0	281	176	185	0	
Hoy Flat	10,090	0	1,500	11,590	425	327	5/1	10/31	S,W	W	none	Cat.	117	315	51	364	37	0	0	315	388	49	0	0	315	388	49	0	
Jackson Draw-Crouse Canyon-Dry Hollow	8,812	1,940	6,669	17,421	1,190	514	5/10	10/27	S,W	S,W	none	Cat.	500	980	892	511	211	0	0	980	512	212	0	0	980	512	212	0	
Little Hole	7,184	511	630	8,325	710	651	5/16	10/15	S,W	S,W	none	Cat.	65	330	324	532	384	0	0	330	615	416	0	0	330	615	416	0	
Log Cabin ^h	500	0	120	620	88	20	5/6	11/15	S	S	none	Shp.	1,289	58	58	17	17	0	58	0	19	31	0	58	0	19	31	0	
Mail Draw	790	0	360	1,150	135	35	5/16	10/31	S	W	none	Cat.	42	85	85	36	19	0	0	85	40	45	0	0	85	40	45	0	
Mame's Hole-Bear Hollow	1,380	40	1,310	2,730	175	28	5/10	10/26	S	S	none	Cat.	75	140	131	22	26	0	0	140	27	36	0	0	140	27	36	0	
Offield Mountain	6,930	0	1,540	8,470	330	250	5/11	10/31	S,W	S,W	none	Cat.	117	255	216	275	37	0	0	255	283	42	0	0	255	283	42	0	
Pot Creek	1,660	0	1,550	3,210	140	51	5/18	10/17	S,W	S,W	none	Cat.	125	107	90	48	32	0	0	107	50	34	0	0	107	50	34	0	
School Bus	1,480	0	660	2,140	270	23	5/16	10/31	S	S	none	Cat.	50	180	180	22	13	0	0	180	42	71	0	0	180	42	71	0	
Sears Canyon-Marshall Draw	10,400	1,330	3,360	15,090	1,011	454	5/16	10/15	S,W	S,W	none	Cat.	275	561	360	426	216	0	0	561	505	399	0	0	561	505	399	0	
Serviceberry Spring	1,930	0	1,930	3,860	233	32	5/16	10/31	S	S	none	Cat.	108	113	113	34	13	0	0	113	52	100	0	0	113	52	100	0	
Shiner	1,780	0	2,810	4,590	222	131	5/16	10/25	S,W	W	none	Cat.	200	177	167	137	37	0	0	177	138	38	0	0	177	138	38	0	
Warren Draw	7,270	400	5,440	13,110	785	180	5/01	10/31	S,W	S,W	none	Cat.	200	375	73	137	192	0	0	375	171	419	0	0	375	171	419	0	
Willow Creek	13,990	2,548	3,710	20,248	1,704	237	5/16	9/30	S,W	S,W	S,W	Cat.	503	1,234	1,202	146	160	37	0	1,234	237	429	41	0	1,234	237	429	41	
Spring-Summer (Begin in June) (sub total)	2,280	0	2,520	4,800	339	107						Cat.	435	274	274	103	64	0	0	274	105	67	0	0	274	105	67	0	
Cove	2,050	0	1,610	3,660	323	97	6/1	9/15	S,W	S,W	none	Cat.	265	268	268	93	58	0	0	268	93	59	0	0	268	93	59	0	
West Cow	230	0	910	1,140	16	10	6/1	9/15	S,W	S,W	none	Cat.	170	6	6	10	6	0	0	6	12	8	0	0	6	12	8	0	
Continue Existing Improved Management (sub total)	39,538	2,734	5,530	47,802	6,332	1,233						Cat.	1,223	4,447	4,429	1,240	447	0	0	4,447	1,657	774	15	0	5,119	1,657	774	15	
Rest Rotation (sub total)	12,008	1,714	1,430	15,152	1,677	588						Cat.	175	552	1,201	627	104	0	0	1,224	921	105	15	0	1,291	921	105	15	
Hoy Mountain (Spring, Summer, Fall Grazing)	3,550	430	1,430	5,410	637	144	5/16	10/31	S,W	S,W	none	Cat.	175	552	529	124	104	0	0	552	124	105	0	0	619 ⁱ	124	105	0	
Red Creek (Spring Grazing)	8,458	1,284	0	9,742	1,040	444	4/6	6/5	S,W	none	none	Cat.	0 ^j	0 ^j	672	503	0	0	0	672 ^g	797	0	15	0	672 ^g	797	0	15	
Deferred Rotation (sub total)	15,430	0	2,040	17,470	1,906	453						Cat.	398	1,446	1,021	460	186	0	0	1,446	552	361	0	0	1,637 ⁿ	552	361	0	
Ory Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)	15,430	0	2,040	17,470	1,906	453	5/6	10/28	S,W	W	none	Cat.	398	1,446	1,021	460	186	0	0	1,446	552	361	0	0	1,637 ⁿ	552	361	0	

Existing Livestock and Big Game Grazing Situation														Proposed Forage Allocation (AUMs)															
Proposed Action Sub-component and Allotment		Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c				Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e			Initial										
																			Livestock			Big Game			Long Term (20th Year)				
		P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Deer	Elk	Ant.	Kind	No.	AUMs Pref.	AUMs Actual	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.
Deferred Rotation and Rest Rotation (sub total)		12,100	1,020	2,060	15,180	2,749	192						Cat.	650	2,449	2,207	163	157	0	0	2,449	184	308	0	0	2,558	184	308	0
Ruple Cabin (Spring, Summer Grazing)		12,100	1,020	2,060	15,180	2,749	192	5/16	9/15	S,W	S,W	none	Cat.	650	2,449	2,207	163	157	0	0	2,449	184	308	0	0	2,558 ⁱ	184	308	0
GRAND TOTAL		190,536	18,749	73,511 ^l	282,796	25,993	8,350						Shp. Cat.	17,078 5,068	15,901 ^m	13,952	8,070	2,633	355	2,878	14,695	10,299	6,091	380	2,878	15,062	10,299	6,091	380

^aP.L. = public land; St. = state land (land grant sections); Prvt. = private or former private land purchased by wildlife agencies.

^bInv. = useable livestock forage identified in 8LM surveys of 1958 or 1976; Other = additional forage known to be used by big game, based on actual big game use and fecal analysis and inventoried forage not useable for livestock.

^cSeason of Use, Big Game S - Summer (May 15 to October 15), W - Winter (October 16 to May 14).

^dAUMs Pref. = AUMs Preference (10 year permit), AUMs Actual = 5 year average actual use.

^eEstimates of current use by big game were made by 8LM personnel based on Utah Division of Wildlife Resource's herd management unit figures.

^fNonrenewable permit up to 1,000 AUMs additional to the preference allocation.

^gAllocated for use under non-renewable permits.

^hThis allotment includes National Forest Lands not listed here, but permitted on a percent basis.

ⁱAllowance made for sage control projects.

^jTemporary annual permit up to 672 AUMs additional.

^kThis allotment includes National Park Lands not listed here, but permitted on a percent basis.

^lIncludes 3,581 acres of former private land which has been purchased by wildlife agencies.

^mOoes not include non-renewable permit up to 1,672 AUMs which are permitted on an annual basis.

ⁿIncluded 10 percent increase in allocation for forage response to improved management.

APPENDIX VIII-5

Estimated Developments Required to Implement the Alternative Action of Continuing Existing Range Management and Level of Forage Allocation

Allotments	Proposed Developments	Proposed Sagebrush Control
<u>Continue Existing Improved Management</u>		
<u>Rest Rotation</u>		
Hoy Mountain	None	480 ac. of sagebrush spraying
<u>Deferred Rotation</u>		
Dry Creek- South Pot Creek- Wild Mountain	1 water pipeline (2 mi.) 4 water troughs 1 storage tank	None
<u>Rest Rotation and Deferred Rotation</u>		
Ruple Cabin	2 water pipelines (3 mi.) 6 water troughs 2 storage tanks	780 ac. of sagebrush spraying

Existing Forage Use and Continue Existing Management With a 50 Percent Reduction in the Proposed Level of Livestock Grazing Allocation

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation												Alternate Forage Allocation (AUMs)											
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e			Livestock		Big Game			Watershed and Other Values
							Livestock		Big Game			Kind	No.	AUMs Pref. ^e	AUMs Actual	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	
	P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Deer	Elk	Ant.													Deer
No Livestock Grazing (sub total)	2,860	440	1,200	4,500	179	329	none	none	S,W	S,W	none	none	closed 1963	308	128	0	0	0	331	177	0	0		
Rye Grass	2,860	440	1,200	4,500	179	329	none	none	S,W	S,W	none	none	closed 1963	308	128	0	0	0	331	177	0	0		
Continue Allotment-Wide Grazing (sub total)	148,138	15,575	66,781	230,494	19,482	6,788						Shp.	17,078	11,454	9,523	6,514	2,058	355	1,830	5,231	8,311	5,140	365	5,393
												Cat.	3,825											
Spring (April and May only) (sub total)	20,595	2,806	1,340	24,741	1,619	1,316						Cat.	84	139	688	1,367	19	25	0	570	1,596	169	31	569
Bridgeport	8,298	880	0	9,178	389	405	4/11	5/30	S,W	none	S,W	Cat.	84	139	122	434	0	25	0	70	524	100	31	69
Taylor Flat-Watson	12,297	1,926	1,340	15,563	1,230	911	4/1	5/30	S,W	W	none	Cat.	0 ^f	0 ^f	566	933	19	0	0	500	1,072	69	0	500
Spring and Fall (Begin in May) (sub total)	17,255	2,880	21,590	41,725	5,636	596						Shp.	14,388	2,731	1,633	744	200	0	1,756	0	1,805	1,696	0	976
Bealer Basin-Diamond Gulch-Diamond Spring	5,650	1,600	4,700	11,950	2,200	154	5/1 9/16	6/30 11/30	S,W	S,W	none	Shp.	3,455	1,120	761	246	0	0	807	0	585	649	0	313
Bowery Spring	1,240	1,280	2,970	5,490	535	103	5/1 9/16	6/30 10/31	S,W	none	none	Shp.	1,484	135	47	166	0	0	68	0	395	108	0	67
Cooper Draw	2,480	0	840	3,320	734	46	5/1 9/6	6/30 11/15	S	S,W	none	Shp.	568	344	164	73	0	0	263	0	298	138	0	81
Davis Draw-Crouse Reservoir-Lambson	3,650	0	3,750	7,400	882	170	5/6	7/5	S	S,W	none	Shp.	3,000	572	445	180	96	0	337	0	270	210	0	235
Gadson Draw-Gerber Spring	1,710	0	3,540	5,250	413	81	5/1 9/16	6/30 10/31	S	S,W	none	Shp.	1,902	213	75	31	96	0	107	0	74	207	0	106
Highway	440	0	630	1,070	197	3	5/1 9/16	6/30 10/31	S	none	none	Shp.	302	57	21	4	0	0	29	0	46	97	0	28
McKee Spring	880	0	2,440	3,320	406	7	5/1 9/16	6/30 10/31	S	none	none	Shp.	1,257	176	70	9	0	0	88	0	77	160	0	88
Natural Lake	1,125	0	1,720	2,845	250	25	5/1 9/1	6/30 11/5	S	S	none	Shp.	2,400	100	36	26	13	0	50	0	50	125	0	50
Smokem-up	80	0	1,000	1,080	19	7	5/1 9/16	6/30 10/30	S	none	none	Shp.	20	14	14	9	0	0	7	0	10	2	0	7
Spring-Summer-Fall (Begin in May or June)(sub total)	108,008	9,889	41,331	159,228	11,888	4,769						Shp. Cat.	2,690 3,326	8,310	6,928	4,298	1,770	330	74	4,524	4,805	3,208	334	3,712
Bates Spring	320	0	680	1,000	105	7	5/11	11/10	S	none	none	Shp.	645	55	55	9	0	0	28	0	25	32	0	27
Beaver Dam ^h	280	80	1,080	1,440	124	11	5/6	11/15	S	S	none	Shp.	756	34	34	9	9	0	17	0	20	81	0	17
Blair Basin	360	0	520	880	40	18	6/1	10/31	S	S,W	none	Cat.	60	15	15	9	32	0	0	8	9	34	0	7
Clay Basin-Antelope Flat-Goslin Mountain ^h	28,302	2,710	2,797	33,809	3,265	1,650	4/16	11/30	S,W	S,W	S,W	Cat.	550	2,905	2,612	1,405	290	293	0	1,458	1,416	301	293	1,447

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation														Alternate Forage Allocation (AUMs)									
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e			Livestock		Big Game			Watershed and Other Values
							Livestock		Big Game			AUMs		AUMs Actual										
	P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Deer	Elk	Ant.	Kind	No.		Pref. ^e	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	
East Cow	590	0	1,490	2,080	75	29	6/1	10/31	S	S,W	none	Cat.	76	50	50	22	32	0	0	25	22	32	0	25
Gadson	990	40	2,000	3,030	330	10	5/10	10/31	S	none	none	Cat.	103	60	58	13	0	0	0	97	58	222	0	37
Hatch Cove	2,970	290	1,175	4,435	531	111	5/16	10/31	S,W	S	none	Cat.	70	281	162	124	13	0	0	197	176	185	0	84
Hoy Flat	10,090	0	1,500	11,590	425	327	5/1	10/31	S,W	W	none	Cat.	117	315	51	364	37	0	0	167	388	49	0	148
Jackson Draw-Crouse Canyon-Dry Hollow	8,812	1,940	6,669	17,421	1,190	514	5/10	10/27	S,W	S,W	none	Cat.	500	980	892	511	211	0	0	891	512	212	0	489
Little Hole	7,184	511	630	8,325	710	651	5/16	10/15	S,W	S,W	none	Cat.	65	330	324	532	384	0	0	194	615	416	0	136
Log Cabin	500	0	120	620	88	20	5/6	11/15	S	S	none	Shp.	1,289	58	58	17	17	0	29	0	19	31	0	29
Mail Draw	790	0	360	1,150	135	35	5/16	10/31	S	W	none	Cat.	42	85	85	36	19	0	0	43	40	45	0	42
Mame's Hole-Bear Hollow	1,380	40	1,310	2,730	175	28	5/10	10/26	S	S	none	Cat.	75	140	131	22	26	0	0	70	27	36	0	70
Offield Mountain	6,930	0	1,540	8,470	330	250	5/11	10/31	S,W	S,W	none	Cat.	117	255	216	275	37	0	0	131	283	42	0	124
Pot Creek	1,660	0	1,550	3,210	140	51	5/18	10/17	S,W	S,W	none	Cat.	125	107	90	48	32	0	0	54	50	34	0	53
School Bus	1,480	0	660	2,140	270	23	5/16	10/31	S	S	none	Cat.	50	180	180	22	13	0	0	110	42	71	0	70
Sears Canyon-Marshall Draw	10,400	1,330	3,360	15,090	1,011	454	5/16	10/15	S,W	S,W	none	Cat.	275	561	360	426	216	0	0	346	505	399	0	215
Serviceberry Spring	1,930	0	1,930	3,860	233	32	5/16	10/31	S	S	none	Cat.	108	113	113	34	13	0	0	83	52	100	0	30
Shiner	1,780	0	2,810	4,590	222	131	5/16	10/25	S,W	W	none	Cat.	200	177	167	137	37	0	0	89	138	38	0	88
Warren Draw	7,270	400	5,440	13,110	785	180	5/01	10/31	S,W	S,W	none	Cat.	200	375	73	137	192	0	0	253	171	419	0	122
Willow Creek	13,990	2,548	3,710	20,248	1,704	237	5/16	9/30	S,W	S,W	S,W	Cat.	503	1,234	1,202	146	160	37	0	708	237	429	41	526
Spring-Summer (Begin in June) (sub total)	2,280	0	2,520	4,800	339	107						Cat.	435	274	274	103	64	0	0	137	105	67	0	137
Cove	2,050	0	1,610	3,660	323	97	6/1	9/15	S,W	S,W	none	Cat.	265	268	268	93	58	0	0	134	93	59	0	134
West Cow	230	0	910	1,140	16	10	6/1	9/15	S,W	S,W	none	Cat.	170	6	6	10	6	0	0	3	12	8	0	3
Continue Existing Improved Management (sub total)	39,538	2,734	5,530	47,802	6,332	1,233						Cat.	1,223	4,447	4,429	1,250	447	0	0	2,670	1,657	774	15	2,449
Rest Rotation (sub total)	12,008	1,714	1,430	15,152	1,677	588						Cat.	175	552	1,201	627	104	0	0	612	921	105	15	612
Hoy Mountain (Spring, Summer, Fall Grazing)	3,550	430	1,430	5,410	637	144	5/16	10/31	S,W	S,W	none	Cat.	175	552	529	124	104	0	0	276	124	105	0	276
Red Creek (Spring Grazing)	8,458	1,284	0	9,742	1,040	444	4/6	6/5	S,W	none	none	Cat.	0 ^j	0 ^j	672	503	0	0	0	336	797	0	15	336
Deferred Rotation (sub total)	15,430	0	2,040	17,470	1,906	453						Cat.	398	1,446	1,021	460	186	0	0	790	552	361	0	656
Dry Creek-South Pot Creek-Wild Mountain (Spring, Summer, Fall Grazing)	15,430	0	2,040	17,470	1,906	453	5/6	10/28	S,W	W	none	Cat.	398	1,446	1,021	460	186	0	0	790	552	361	0	656

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation												Alternate Forage Allocation (AUMs)														
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^e						Alternate Forage Allocation (AUMs)					
	P.L.	St.	Prvt.	Total	Inv.	Other	Livestock From	to	Deer	Big Game Elk	Ant.	Kind	No.	AUMs Pref. ^e	AUMs Actual	Deer	Elk	Ant.	Sheep	Cattle	Deer	Elk	Ant.	Watershed and Other Values			
Deferred Rotation and Rest Rotation (sub total)	12,100	1,020	2,060	15,180	2,749	192						Cat.	650	2,449	2,207	163	157	0	0	1,268	184	308	0	1,181			
Ruple Cabin (Spring, Summer Grazing)	12,100	1,020	2,060	15,180	2,749	192	5/16	9/15	S,W	S,W	none	Cat.	650	2,449	2,207	163	157	0	0	1,268	184	308	0	1,181			
GRAND TOTAL	190,536	18,749	73,511	282,796	25,993	8,350						Shp.	17,078	15,901 ^m	13,952	8,070	2,633	355	1,830	7,901	10,299	6,091	380	7,842			
												Cat.	5,068														

^aP.L. = public land; St. = state land (land grant sections); Prvt. = private or former private land purchased by wildlife agencies.

^bInv. = useable livestock forage identified in BLM surveys of 1958 or 1976; Other = additional forage known to be used by big game, based on actual big game use and fecal analysis and inventoried forage not useable for livestock.

^cSeason of Use, Big Game S - Summer (May 15 to October 15), W - Winter (October 16 to May 14).

^dAUMs Pref. = AUMs Preference (10 year permit), AUMs Actual = 5 year average actual use.

^eDoes not include non-renewable permits.

^fEstimates of current use by big game were made by BLM personnel based on Utah Division of Wildlife Resource's herd management unit figures.

Existing Forage Use and Allocation of Forage With Elimination of Livestock Grazing

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation													Alternative Forage Allocation (AUMs)								
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^f			Big Game ^g			Watershed and Other Uses ^h
							Livestock		Big Game			Kind	No.	AUMs Pref. ^e	AUMs Actual.	Deer	Elk	Ant.	Deer	Elk	Ant.	
	P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Deer	Elk	Ant.											
No Livestock Grazing																						
Bates Spring	320	680	0	1,000	105	7	5/11	11/10	S	none	none	Shp.	645	55	55	9	0	0	25	32	0	55
Bealer Basin-Diamond Gulch-Diamond Spring	5,650	1,600	4,700	11,950	2,200	154	5/1 9/16	6/30 11/30	S,W	S,W	none	Shp.	3,455	1,120	761	246	0	0	585	649	0	1,120
Beaver Dam ⁱ	280	80	1,080	1,440	124	11	5/6	11/15	S	S	none	Shp.	756	34	34	9	0	0	20	81	0	34
Blair Basin	360	0	520	880	40	18	6/1	10/31	S	S,W	none	Cat.	60	15	15	9	32	0	9	34	0	15
Bowery Spring	1,240	1,280	2,970	5,490	535	103	5/1 9/16	6/30 10/31	S,W	none	none	Shp.	1,484	135	47	166	0	0	395	108	0	135
Bridgeport	8,298	880	0	9,178	389	405	4/11	5/30	S,W	none	S,W	Cat.	84	139	122	434	0	25	524	100	31	139
Clay Basin-Antelope Flat-Goslin Mountain ⁱ	28,302	2,710	2,797	33,809	3,265	1,650	4/16	11/30	S,W	S,W	S,W	Cat.	550	2,905	2,612	1,405	290	293	1,416	301	293	2,905
Cooper Draw	2,480	0	840	3,320	734	46	5/1 9/6	6/30 11/15	S	S,W	none	Shp.	568	344	164	73	0	0	298	138	0	344
Cove	2,050	0	1,610	3,660	323	97	6/1	9/15	S,W	S,W	none	Cat.	265	268	268	93	58	0	93	59	0	268
Davis Draw-Crouse Reservoir-Lambson	3,650	0	3,750	7,400	882	170	5/6 9/1	7/5 11/5	S	S,W	none	Shp.	3,000	572	445	180	96	0	270	210	0	572
Dry Creek-South Pot Creek-Wild Mountain	15,430	0	2,040	17,470	1,906	453	5/6	10/28	S,W	W	none	Cat.	398	1,446	1,021	460	186	0	552	361	0	1,446
East Cow	590	0	1,490	2,080	75	29	6/1	10/31	S	S,W	none	Cat.	76	50	50	22	32	0	22	32	0	50
Gadson	990	40	2,000	3,030	330	10	5/10	10/31	S	none	none	Cat.	103	60	58	13	0	0	58	222	0	3,080
Gadson Draw-Gerber Spring	1,710	0	3,540	5,250	413	81	5/1 9/16	6/30 10/31	S	S,W	none	Shp.	1,902	213	75	31	96	0	74	207	0	213
Hatch Cove	2,970	290	1,175	4,435	531	111	5/16	10/31	S,W	S	none	Cat.	70	281	162	124	13	0	176	185	0	281
Highway	440	0	630	1,070	197	3	5/1 9/16	6/30 10/31	S	none	none	Shp.	302	57	21	4	0	0	46	97	0	1,124
Hoy Flat	10,090	0	1,500	11,590	425	327	5/1	10/31	S,W	W	none	Cat.	117	315	51	364	37	0	388	49	0	315
Hoy Mountain	3,550	430	1,430	5,410	637	144	5/16	10/31	S,W	S,W	none	Cat.	175	552	529	124	104	0	124	105	0	552
Jackson Draw-Crouse Canyon-Dry Hollow [✓]	8,812	1,940	6,669	17,421	1,190	514	5/10	10/27	S,W	S,W	none	Cat.	500	980	892	511	211	0	512	212	0	980
Little Hole	7,184	511	630	8,325	710	651	5/16	10/15	S,W	S,W	none	Cat.	65	330	324	532	384	0	615	416	0	330
Log Cabin ⁱ	500	0	120	620	88	20	5/6	11/15	S	S	none	Shp.	1,289	58	58	17	17	0	19	31	0	50
Mail Draw	790	0	360	1,150	135	35	5/16	10/31	S	W	none	Cat.	42	85	85	36	19	0	40	45	0	85
Mame's Hole-Bear Hollow	1,380	40	1,310	2,730	175	28	5/10	10/26	S	S	none	Cat.	75	140	131	22	26	0	27	36	0	140

Proposed Action Sub-component and Allotment	Existing Livestock and Big Game Grazing Situation													Alternative Forage Allocation (AUMs)								
	Acreage ^a				Forage Production ^b (AUMs)		Season of Use ^c					Present Livestock Use ^d				Estimated Current Wildlife Use (AUMs) ^f			Big Game ^g			Watershed and Other Uses ^h
							Livestock		Big Game			AUMs		AUMs								
	P.L.	St.	Prvt.	Total	Inv.	Other	From	to	Oeer	Elk	Ant.	Kind	No.		Pref. ^e	Actual	Oeer	Elk	Ant.			
McKee Spring	880	0	2,440	3,320	406	7	5/1 9/16	6/30 10/31	S	none	none	Shp.	1,257	176	70	9	0	0	77	160	0	3,489
Natural Lake	1,125	0	1,720	2,845	250	25	5/1 9/1	6/30 11/5	S	S	none	Shp.	2,400	100	36	26	13	0	50	125	0	2,920
Offield Mountain	6,930	0	1,540	8,470	330	250	5/11	10/31	S,W	S,W	none	Cat.	117	255	216	275	37	0	283	42	0	255
Pot Creek	1,660	0	1,550	3,210	140	51	5/18	10/17	S,W	S,W	none	Cat.	125	107	90	48	32	0	50	34	0	107
Red Creek	8,458	1,284	0	9,742	1,040	444	4/6	6/5	S,W	none	none	Cat.	0 ^j	0 ^j	672	503	0	0	797	0	15	672
Ruple Cabin	12,100	1,020	2,060	15,180	2,749	192	5/16	9/15	S,W	S,W	none	Cat.	650	2,449	2,207	163	157	0	184	308	0	2,449
Rye Grass	2,860	440	1,200	4,500	179	329	none	none	S,W	S,W	none	none	closed	1963		308	128	0	331	117	0	0
School Bus	1,480	0	660	2,140	270	23	5/16	10/31	S	S	none	Cat.	50	180	180	22	13	0	42	71	0	180
Sears Canyon-Marshall Draw	10,400	1,330	3,360	15,090	1,011	454	5/16	10/15	S,W	S,W	none	Cat.	275	561	360	426	216	0	505	399	0	561
Serviceberry Spring	1,930	0	1,930	3,860	233	32	5/16	10/31	S	S	none	Cat.	108	113	113	34	13	0	52	100	0	113
Shiner	1,780	0	2,810	4,590	222	131	5/16	10/25	S,W	W	none	Cat.	200	177	167	137	37	0	138	38	0	177
Smokem-up	80	0	1,000	1,080	19	7	5/1 9/16	6/30 10/30	S	none	none	Shp.	20	14	14	9	0	0	10	2	0	14
Taylor Flat-Watson	12,297	1,926	1,340	15,563	1,230	911	4/1	5/30	S,W	W	none	Cat.	0 ^e	0 ^e	566	933	19	0	1,072	69	0	1,000
Warren Draw	7,270	400	5,440	13,110	785	180	5/01	10/31	S,W	S,W	none	Cat.	200	375	73	137	192	0	171	419	0	789
West Cow	230	0	910	1,140	16	10	6/1	9/15	S,W	S,W	none	Cat.	170	6	6	10	6	0	12	8	0	6
Willow Creek	13,990	2,548	3,710	20,248	1,704	237	5/16	9/30	S,W	S,W	S,W	Cat.	503	1,234	1,202	146	160	37	237	429	41	1,234
GRAND TOTAL	190,536	18,749	73,511 ^l	282,796	25,993	8,350						Shp. Cat.	17,078 5,068	15,901 ^m	13,952	8,070	2,633	355	10,299	6,091	380	17,573

^aP.L. = public land; St. = state land (land grant sections); Prvt. = private or former private land purchased by wildlife agencies.

^bInv. = useable livestock forage identified in 8LM surveys of 1958 or 1976; Other = additional forage known to be used by big game, based on actual big game use and fecal analysis and inventoried forage not useable for livestock.

^cSeason of Use, Big Game S - Summer (May 15 to October 15), W - Winter (October 16 to May 14).

^dAUMs Pref. = AUMs Preference (10 year permit), AUMs Actual = 5 year average actual use.

^eNonrenewable permit not included in the preference.

^fEstimates of current use by big game were made by 8LM personnel based on Utah Division of Wildlife Resource's herd management unit figures.

^gAssumed level of big game forage use at 20 years after implementation of the alternative.

^hRepresents the difference between forage production and big game forage allocation.

This allotment includes National Foreset Lands not listed here, but permitted on a percent basis.

ⁱAllowance made for sage control projects.

^jTemporary annual permit up to 672 AUMs additonal.

^kThis allotment includes National Park Lands not listed here, but permitted on a percent basis.

^lIncludes 3,581 acres of former private land which has been purchased by wildlife agencies.

^mDoes not include non-renewable permit up to 1,672 AUMs which are permitted on an annual basis.

GLOSSARY

Acre-Foot. A volume that will cover an area of 1 acre to a depth of 1 foot (43,560 cubic feet).

Active Authorized Use. Livestock grazing use which is authorized by permit and for which permittees have paid.

Actual Use. Livestock use which is known to have occurred either because of counts made by BLM employees or because of reports from the livestock operators.

Adjudication. A process where by the BLM adjusted the livestock preference permits granted to permittees. The adjudication was based on BLM studies and the class, numbers, and seasons of use of livestock and the allotment boundary were established by agreement with operators or administrative decisions.

Allocation. The officially recognized amount of forage (generally described as AUMs) which is given to a particular individual livestock operator or organization.

Allotment. An area of land where one or more operators graze their livestock. Generally consists of public land but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

Allotment Management Plan (AMP). A written program of livestock grazing management, including supportive measures, if required, designed to attain specific management goals in a grazing allotment.

Allotment-Wide Grazing. In this statement, continuous grazing, that is allowing domestic livestock to graze an entire allotment throughout the entire grazing season.

Alluvial. Relating to or formed by water carrying and depositing rocks, soil, and other materials.

Animal Units. One cow with calf less than 6 months old, or an equivalent identified as five sheep, 9.6 antelope, 5.8 mule deer, 1.88 elk.

Animal Unit Month (AUM). The amount of forage required to sustain the equivalent animal unit for one month.

Browse. As a noun, trees and shrubs used as food by cattle, deer, elk, and other animals. As a verb, to consume, feed, or eat browse plants.

GLOSSARY (continued)

Carrying Capacity. The maximum stocking rate possible without inducing damage to vegetation or related resources such as watershed. This incorporates such things as the suitability of the range to grazing as well as the proper use which can be made on each and all the plants within the area. Normally expressed in terms of acres per animal unit month (AC/AUM) or sometimes referred to as the total AUMs that are available in any given area such as an allotment. Areas that are unsuitable for livestock use are not computed in the carrying capacity. This may or may not be the same as the stocking rate.

Climax Community. The final vegetation community which emerges after a series of successive vegetation stages and perpetuates itself indefinitely unless disturbed by outside forces.

Chaining. The process of manipulating vegetation by pulling an anchor chain between two crawler tractors. Thus reducing tall growing brittle vegetation and enhancing grasses and forbs.

Coliform. A general term for a group of bacteria found in the large intestine of man or animals--its presence in water usually indicates fecal pollution.

Community. An aggregate of organism which form a distinct ecological unit. Such a unit may be defined in terms of plants, animals, or both.

Community Allotment. Allotments involving more than one livestock operator.

Cool-Season Plant. A plant which generally makes the major portion of its growth during the late winter, spring, and early summer.

Critical Period. A period in plant development considered essential to the survival of an individual plant.

Crucial Wildlife Habitat. That portion of the living area of a wildlife species that is essential to the survival and perpetuation of the species either as individuals or as a population.

Cultural Resources. Those resources of historical, archaeological, or architectural significance.

Current Year's Growth. The amount of vegetation growth that occurs in the period of one year.

Deferred Rotation Grazing. Discontinuance of grazing on various parts of a range in succeeding years, allowing each part to rest successively during the growing season to permit seed production, establishment of seedlings, or restoration of plant vigor. Two, but usually three or more separate units are required. Control is usually insured by united fencing, but may be obtained by camp unit herding.

GLOSSARY (continued)

Desirable Plants. Those plants which are palatable and productive forage species. They are normally long-lived plants which can include grasses, forbs, and browse.

Ecosystem. A self-sustaining natural system which includes living and non-living components of the environment and the interactions that bind them together. Its functioning involves the circulation of matter and energy between organisms and their environment.

Edaphic. A relationship influenced by soil rather than climate.

Endemic. A species restricted to a given geographical location. Species which are native to a given locale.

Evapotranspiration. The total water loss from the soil, including that by direct evaporation and that by transpiration from the surfaces of plants.

Exchange of Use. An agreement made with an operator having ownership or control of private land interspersed and grazed in conjunction with surrounding federal range. This agreement specifies the carrying capacity and gives the Bureau control of the nonfederal land for grazing purposes (see also percent federal range).

Fair Condition. A range is in fair condition if the plant composition is 15 to 39 percent of desirable and intermediate species with 5 or more percent made up of desirable species. Soil surface factor (SSF) is less than 60. Also, those ecosystems where the composition comprises 60 percent or more of intermediate species and less than 5 percent desirable species are present will be rated "fair" when SSF is less than 60.1. The actual percent compositions by species is determined by paced transect and ocular reconnaissance procedures. Soil surface factor is determined by an onsite investigation and evaluation.

Food Chain. The path of food energy transfer from producers to consumers.

Forage. Vegetation of all forms available and of a type used for animal consumption.

Forage Condition and Trend. The growth form and amount of forage used by ungulates (principally livestock) and the apparent direction (increasing or decreasing) such forage is moving.

Forb. A broadleaved herb other than grass.

Good Range Condition. A range is in good condition if plant composition is 40 percent or more of both desirable and intermediate species with at least 20 percent of the composition made up of desirable species and has a SSF less than 40. Species composition is determined using paced transects and ocular reconnaissance procedures and the SSF is determined directly through field investigation and evaluation.

GLOSSARY (continued)

Grazing Cycle. The number of years required to apply all of the treatments in the grazing formula to each pasture of the allotment. In other words, it is the completion of 1 full cycle of yearly schedules back to the point of beginning.

Grazing Treatments. The grazing of animals in a prescribed manner or system.

Grazing System. A systematic sequence of grazing use and nonuse of an allotment as described in an allotment management plan.

Habitat. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Hedging. The persistent browsing of terminal buds of browse species causing excessive lateral branching and a reduction in upward growth.

Herb. A seed-producing plant that does not develop persistent woody tissue.

Herbage. The fleshy, edible parts of plants.

Infiltration. The flow of a liquid into a substance through pores or other openings.

Infiltration Rate. Characteristic describing the maximum rate at which water can enter the soil under specific conditions including the presence or excess water.

Key Species. A plant that is a relatively or potentially abundant species. It should be able to endure moderately close grazing, and serve as an indicator of changes occurring in the vegetational complex. The key species is an important vegetative component that if overused, will have a significant effect on watershed conditions, grazing capacity, or other resource values. More than one key species may be selected on an allotment. For example, a species may be important for watershed protection, and a different species may be important for livestock forage or wildlife forage, etc.

License. See permit.

Litter. A surface layer of organic debris consisting of freshly fallen or slightly decomposed organic material. Litter is important because it covers and protects the soil, reduces runoff rates, increases infiltration, and it yields organic matter which improves soil fertility.

Livestock Operators. A person or organization legally permitted to graze livestock on public land.

GLOSSARY (continued)

Management Framework Plan (MFP). Land use plan for public lands administered by BLM which provides a set of goals, objectives, and constraints for a specific planning area; a guide to the development of detailed plans for the management of each resource.

Multiple-use Recommendations. Those recommendations contained in the MFP which attempt to resolve conflicts among single uses.

Non-competitive Forage. Forage which deer, elk, or antelope use and which cannot be used by livestock.

Ocular Reconnaissance Survey. A forage survey method which inventories vegetation by estimating total forage density, percent composition by species and total usable forage in a given range type to determine the carrying capacity for livestock and wildlife.

Pasture. A subdivision of a grazing allotment.

Pellet Groups. A group of fecal material defecated by an animal (particularly big game) at one time.

Percent Federal Range. AUMs on public lands compared to AUMs on private and state.

Percent Utilization. Grazing use of current growth, usually expressed as a percent of weight removed and most often related to key species.

Perennial Plant. A plant that has a life cycle of 3 or more years. Because of their longevity, it is desirable to base management on these species.

Permeability, Soil. The ease with which gasses, liquids, or plant roots penetrate or pass through a layer of soil.

Permit. An authorization which allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types preference (10 year) and temporary non-renewable (1 year).

Planning Area Analysis (PAA). The summary of data on social and economic conditions for a planning unit.

Phenology. Plant phenology refers to dates of sprouting, flowering, seeding production, and regrowth, as well as other observable occurrences in plant development.

Phreatophyte. Plants using large amounts of water; habitually sending roots down and absorbing water from the water table or other permanent ground water supply.

Physiological requirements. Nutritional requirements a plant needs for growth.

GLOSSARY (continued)

Plant Vigor. The relative well being and health of a plant as reflected by its ability to manufacture sufficient food for growth and maintenance.

Preference. The basis upon which permits are issued for grazing.

Profile (Soil). The series of superimposed layers of horizons in the soil.

Proper Use. A degree and time of grazing use which, if continued, will either maintain or improve the range condition consistent with conservation or other natural resources.

Plant Composition. The mixture of plants found in a vegetation type or study area usually expressed in percents as related to all the other plants.

Raptors. An order of birds of prey such as the eagle, hawk, owl, or vulture.

Rest. Refers to seasonal resting from livestock grazing of a range.

Rest Rotation Grazing. An intensive system of management whereby grazing is deferred on various parts of the range during succeeding years, allowing the deferred part complete rest for one year. Two or more units are required. Control by fencing is usually necessary on cattle range, but may be obtained by herding on sheep ranges.

Riparian Vegetation (habitat). Plants that are adapted to moist growing conditions found along waterways, ponds and generally moist environments.

Season-of-Use. Refers to the period of livestock grazing on an allotment.

Shrub. A plant that has persistent, woody stem and a relatively low growth habit, and generally produces several basal shoots instead of a single trunk.

Soil Association. A group of defined and named soil units occurring together in individual and characteristic patterns over a geographic region.

Soil Classification. The systematic arrangements of soils into classes in one or more categories or levels of classification for a specific objective. Broad groupings are made on the basis of general characteristics and subdivisions on the basis of more detailed differences in specific properties.

Soil Surface Factor (SSF). A numerical expression of surface erosion activity caused by wind and water as reflected by soil movement, surface litter, erosion pavement, pedestalling, rills, flow patterns, and gullies. Values may vary from 0 for no erosion to 100 for severe erosion conditions.

State Lands. Land controlled or administered by one of the individual United States.

GLOSSARY (concluded)

Stocking Rate. The degree to which a grazing unit is stocked with livestock, usually expressed in AUMs. The stocking rate may be more or less than the carrying capacity.

Succulent. Having fleshy or juicy tissues with high water content.

Suspended Solids. A dispersion of solid particles in a liquid.

Sustained Yield. The achievement and maintenance of a high level, annual or regular period output of the various renewable resources of land without impairment of the productivity of the land and its environmental values.

Trespass. The grazing of livestock on public land without proper authority.

Unallotted Lands. Those lands not allocated to a specific use.

Unit Resource Analysis (URA). A compilation of physical resource data and an analysis of the current use, production, condition, and trend of the resource and the potentials and opportunities within a planning unit, including a profile of ecological values.

Utilization. The proportion of the current year's forage production that is consumed or destroyed by grazing animals. This may refer either to a single species or to the whole vegetation complex. Utilization is expressed as a percent by weight, height, or numbers within reach of the grazing animal.

Vegetation Type. A plant community with distinguishable characteristics. A more or less distinct vegetation unit which may be delineated on the basis of aspect, composition, or density.

Warm Season Plant. A plant which makes most of all of its growth during the summer or fall and is usually dormant in winter.

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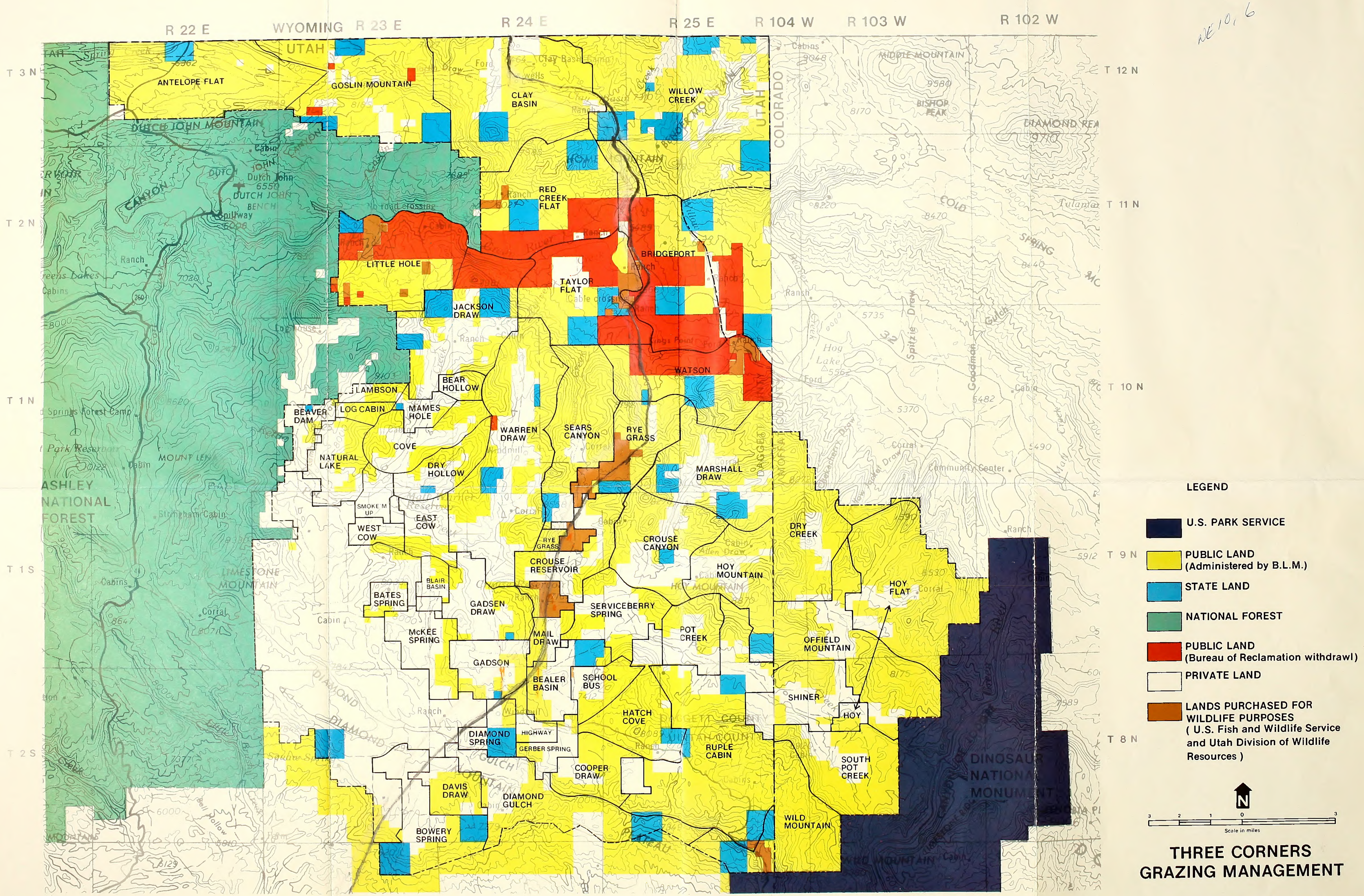
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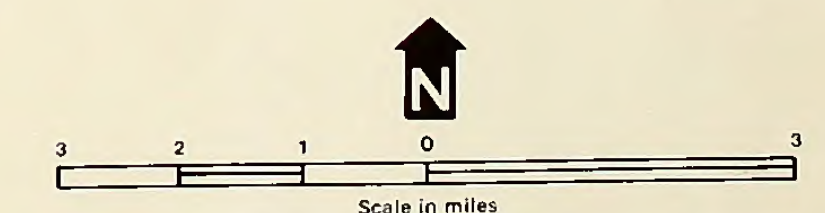
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